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NEW YORK, SATURDAY, MARCH 23, 1918

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MORE THAN 250 YEARS OLD

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The Cast Iron Pipe Publicity Bureau

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AMERICAN
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When Manufacturing Gas at the Rate of a Million Cubic Feet a Day Each B.t.u. in Excess of the Prescribed Average Costs in Oil About $35

Trying to Maintain a Prescribed Average by Making Heating Value Tests Only Once a Day Comparable to Steering a Ship by Lashing the Wheel and Sending a Man from Time to Time to Rectify the Course in Order to Save the Expense of a Regular Man at the Wheel

By A. C. HOWARD
Gas Engineer, United Gas & Electric Engineering Corporation, New York City

It is more difficult to render efficient service when distributing a mixed coal and water gas than when either straight coal or straight water gas in distributed. If the appliances of a company are adjusted to consume efficiently a 50 per cent mixture of these two gases, they will not operate efficiently when supplied with a straight water gas or a straight coal gas.

This inefficiency is most apparent in the operation of a mantle light which, when adjusted to burn a half-and-half mixture, will light back when supplied with a straight water gas, and blackens the mantles when supplied with a straight coal gas.

The Defect Lies Frequently in Cramped Holder Capacity

It frequently happens that a company equipped with both coal and water gas plants is compelled, on account of cramped holder capacity, to manufacture all of the water gas and to pump it from the relief holder into the mixed gas holder during a very short period of the day. The variation in mixed gas in this case is nearly as great as that cited above.

Other companies, for the sake of economy and convenience, manufacture all of the water gas during the day shift and pump it from the relief holder into the mixed gas holder as it is made, with a similar result.

When there is an extra holder available, service conditions can be vastly improved by using this holder for the storage of purified water gas.

When a holder is used in this manner water gas can be pumped from the relief holder at the rate it is being generated during the entire time that the water gas plant is in operation. When the water gas plant is shut down the exhauster used for this pumping may be shut down also.

The water gas meter is fitted with a double outlet permitting the gas pumped from the relief holder either to enter the holder for water gas storage only, or to enter the mixed gas holder with the coal gas. When the water gas plant is running the valves are so adjusted to admit water gas into the mixed gas holder at an approximately uniform rate, the excess water gas flowing into the holder for the storage of water gas only.

When the water gas plant is shut down another exhauster is used for pumping water gas at the same uniform rate from the water gas holder into the mixed gas holder. The coal gas is, of course, manufactured at a fairly uniform rate and necessarily the rate of pumping water gas has to be changed sufficiently to meet the output requirements. The resulting mixed gas is therefore as uniform as the output conditions will permit.

Better Service from Low-Heating Value Gas Than from Rich Gas

When manufacturing water gas only it is not so difficult to maintain a fairly uniform gas. It should be remembered that the two chief components of blue gas, carbon monoxide and hydrogen, require about 2.393

ft. of air per cubic foot of gas for combustion, whereas the hydrocarbon produced from the oil requires a much larger volume of air. Marsh gas requires 9.57 ft. of air per cubic foot of gas for combustion. Ethane requires 16.748 ft.; ethylene requires 14.355 ft., and the vapors of the benzene series require from 36 ft. upward.

Nearly twice as much air per foot of gas is required for the combustion of a 600 B.t.u. water gas as for a 300 B.t.u. blue gas. There is a corresponding change for smaller operations in heating value, and the closer the heating value can be kept to the specified average the more efficiently the gas will be consumed.

It is evident that a company furnishing gas of a low but uniform heating value average might render better service per foot of gas than one furnishing rich gas with a larger variation. It is possible that the lower heating value gas with certain limitations is better in any event, as it is more easily supplied with the lesser amount of air required for combustion.

Monetary Saving from Close Heating Value Regulation

In addition to its important and intimate relation to service, competent control of heating value may result in a reduction of the gas oil bill.

Consider the actual case of a company manufacturing about a million feet of water gas per day. The monthly payroll of this company is about $3,000, and the monthly oil bill $9,000. Four years ago the payroll was about $2,500 and the oil bill about $3,000 per month when reduced to the basis of the present output. In other words, this company expends about the same amount of money for gas oil as did a company putting out 3,000,000 ft. per day a few years ago. Consequently frequent tests of the heating value are now of the same importance to the smaller company as they were to the larger at that time.

When endeavoring to maintain an average heating value, the appliances naturally should be adjusted to consume gas of that heating value. Any deviation will effect the service more or less injuriously.

An excess over the prescribed average does not help the consumer and is therefore a waste of gas oil.

When manufacturing gas at the rate of 1,000,000 ft. per day, each B.t.u. in excess of the prescribed average costs in oil about $35 per month. An excess of 15 B.t.u. is equivalent to over $6,000 per year.

Saving in Oil Should Many Times Exceed the Cost of Frequent Tests

The heating value can be accurately controlled only when frequent tests are made, and without considering the improved service, the value of the oil saved should many times exceed the cost of the tests.

It appears that moderate sized plants, or those manufacturing a million, and even those producing half a million feet of gas daily, should make frequent if not hourly tests of the heating value, so that an hourly adjustment of the rate of admitting gas oil can be made.

Trying to maintain a prescribed average by making heating value tests only once a day is comparable to steering a ship by lashing the wheel and sending a man to rectify the course from time to time in order to save the expense of a regular man at the wheel.

Engine Room Construction Suggestions

An engine room should have at least two means of entrance and exit, each of which should be easy of access and within reasonable view of the engineer in charge. (Too many entrances, however, for obvious reasons, are inadvisable.) All passageways and exits should be free of obstructions, and doors should open outwardly and should not be so close to operating equipment as to create a hazard. Basements of engine rooms should have exits so arranged that men may not be trapped in the basement.

A sign should be conspicuously posted outside each doorway forbidding entrance except on business.

If entrance ways are kept open for ventilating or other purposes, bars or gates should be placed across the entrance.

A gallery for visitors is sometimes provided, as the department exercises a fascination for plant visitors. Entrance to such a gallery is preferable by an outside stairway. If entrance to the gallery is from the main entrance, substantial guard and intermediate rails should clearly prescribe the limit of welcome, and signs indicating entrance to gallery should be displayed. The gallery or balcony should be of fire-resisting construction, rigidly built, and should be securely railed to a height of at least 42 in., with intermediate rails and toeboards, or the space between the top rail and floor entirely filled in. Conversation between visitors in gallery and engineers or assistants in room below should not be permitted.

Floor of engine room should be of concrete or abrasive surface to eliminate the slipping hazard. When approach is had to any engine or machine, the non-slipping provision should be emphasized. Frequently inserts or mats of non-slip material are used at these points when the entire floor is not of non-slip material.

Stairways should be of safe construction.

The above is abstracted from one of the National Safety Council's *"Safe Practices"* pamphlets, entitled "Engine Guarding and Engine Stops," which are to be sent to 3,470 industrial plants, railroads and other members of the council.

Peat for Producer Gas

Peat consumed in a properly designed gas producer yields gas of good quality and in abundant quantity in comparison with the yield from coal, as well as many valuable by-products. This is perhaps the most effective utilization of peat fuel for generating heat and power, because peat that is to be used in this way does not need to be so carefully prepared nor so thoroughly dried as peat that is to be consumed under steam boilers.

Specific information with regard to the use of peat in gas-producing plants and for other purposes is given in a bulletin prepared under the supervision of the United States Geological Survey, but published as Bulletin 16 of the Bureau of Mines

New Bond Issue Authorized at Camden, N. J.

Upon the application of the New Jersey Northern Gas Company, of Camden, for approval to issue its first mortgage bonds to cover capital expenditures to the amount of $11,370, the board of public utility commissioners has granted the issuing of bonds to the sum of $12,500, to be sold for not less than 90 per cent of the par value.

All Systems of Remuneration for Salesmen Find Enthusiastic Advocates

E. J. Stephany Gives the Results of a Questionaire Sent to a Selected List of Managers and Commercial Department Heads—The Average Salaries Paid Under Each System

It is the object of this paper to outline the methods for computing the compensation of gas company salesmen in use by gas companies generally, to compare these methods and to thus give the information which will allow the new business manager to determine which system would be the best for his particular company, based on the opinion of other commercial men, declared E. J. Stephany, commercial manager of the Southern Illinois Gas Company, in presenting his paper on the subject specified at the annual meeting of the Illinois Gas Association, held in Chicago, March 20.

To gather the necessary data, a questionaire was sent to a select list of ninety-three managers and commercial department heads; this list included large and small companies in all parts of the country. Seventy-one usable replies were received, the information being tabulated in the tables to follow.

The methods of paying salesmen may be divided into the following general classes:

1. Salary.
2. Commission.
3. Salary and commission.
4. Other methods, including point and bonus systems.

Each of these systems will be taken up in order.

Salary

A salesman who is paid on a salary basis is paid a predetermined amount each month period, this amount not being directly dependent upon the sales made during that period.

The following table shows some of the information gathered pertaining to this system:

Company No.	Av. Salary per Month Outside Salesmen	Av. Salary Floor Salesmen	Av. Salary Special Salesmen	Av. Territory —per Man— Meters	Pop.
1	$120.00	$120.00	.....	1,800	16,000
2	85.00	85.00	.....	2,300	14,000
3	100.00	95.00	$100.00	11,000	70,000
4	87.50	80.00	.....	26,500	125,000
5*	85.00	.....	.....	363	4,000
6	75.00	.....	.....	3,500	11,000
7	75.00	.....	.....	2,200	15,000
8	90.00	60.00	.....	3,300	29,000
9	92.50	75.00	116.67	2,100	13,000
10	75.00	.....	.....	3,700	18,000
11*	75.00	55.00	.....	3,500	18,000
12	70.00	.....	.....	1,600	9,000
13	133.33	.....	.....	2,000	11,000
14	115.00	.....	.....	1,000	14,000
15	90.00	80.00	100.00	2,200	16,000
16	100.00	.....	.....	4,800	25,000
17	100.00	.....	.....	2,200	11,000
18	86.00	.....	.....	5,100	14,000
19*	92.50	.....	.....	1,750	11,000
20*	65.00	.....	.....	2,100	11,000
21	96.00	86.00	.....	5,100	23,000
22	80.00	.....	.....	1,156	7,500
23	73.67	.....	83.33	241	7,000
24	86.00	.....	.....	4,100	17,860
25	15.00	.....	115.00	7,300	42,500
26	.....	.....	....	.....	.....
27	100.00	75.00	150.00	8,880	40,800
Average	91.06	81.10	110.83	4,220	22,800

Under "Average Salary per Month—Outside Salesmen" the average remuneration for regular outside solicitors only is included. "Special Salesmen" includes such men as industrial salesmen, hotel and restaurant salesmen and special campaign men. The approximate territory per man is shown on a basis of population and of meters in the territory, so as to allow of judging the saturation of the territory. In newly opened sections, or where the proportion of meters to population is small, the territory assigned to one man will, of course, be smaller.

Where no figures are shown, either no special salesmen are employed or the information could not be gathered.

The following are some of the opinions expressed as to the advantages of the straight salary basis:

"We have had some experience with commission men and find that some of them are so eager to make a sale that it causes the credit and collection department considerable trouble before the transaction is finally completed.

"On our present basis we figure we are able to get good returns for the money expended, and the salesmen have the customers' side of the matter in view all the time, and we have practically no trouble with collections or contracts.

"We are not in favor of a commission system for work of this nature, and our experience has been very unsatisfactory with salesmen on a commission basis.

"We have considered the point system, commission plan and combination salary and commission, but after consideration and investigation have not convinced ourselves that any benefit would be derived from changing from our straight salary plan.

"After looking very carefully into the various systems in use in gas companies we are fully convinced that the system which we use best fits our needs. Our experience with any other than a straight salary is that we do not obtain a complete attention of the salesmen in our behalf, and we have had numerous cases where salesmen working on commission have used our company's name to obtain entrance to the homes of our customers, after which sales have been attempted for

life insurance, water filters, and many other things which salesmen find it convenient to carry as a side line. Under our method of paying salaries it is possible for us to demand a salesman's entire time, and it is a direct act of dishonesty for him to give us less.

"We keep an exact record of each salesman's sales, and the amount of salary is easily adjustable in proportion to the amount of business we receive. While this is in fact a commission basis, it is also a straight salary basis, and enables us to obtain a greater sales effort per man."

Commission

In determining the amount of salary according to a commission basis, a definite percentage of the selling price of the appliances is taken. A minimum salary may or may not be guaranteed.

Company No.	% Commission	Av. Salary per Month	Av. Salary Floor Salesmen	Av. Salary Special Salesmen	Av. Territory —per Man— Meters	Pop.
101*	15-20	$160.00	.....	.....	3,500	12,000
102	12½	95.00	75.00	115.00	5,000	27,000
103	15	146.85	77.00	.....	2,500	12,000
104	10-15	95.00	82.00	105.00	3,700	20,000
105	5-10	135.00	.....	175.00	.....	.....
Average	13	126.37	78.00	131.67	3,675	17,750

One system provides for a minimum salary of $75 per month, this being considered a drawing account. A commission of 15 per cent is paid for the first $600 of sales and 20 per cent on all over this amount. At the end of each three months' period a settlement is made. If the commissions earned exceed the guaranteed amount, this excess is paid, but if the guarantee is not met the deficiency is carried forward as a debt against any future credits.

Another company pays its salesmen 10 per cent commission on the first $500 worth of sales and 15 per cent on all over this amount in any one month. No minimum salary is guaranteed.

Referring to his system, which allows the salesman a drawing account of $12 per week, this amount being deducted from the monthly commission voucher at the end of the month, based on 12 per cent of the amounts of all sales actually written by the salesman plus 7 per cent of all floor sales for his territory, a commercial department head writes as follows:

"I have tried a number of different methods and find this by far the most satisfactory system, not only to the office, but to the salesmen, and do not contemplate making any change.

"On a straight salary some men in every sales force will kill time.

"Without a drawing account salesmen are continually borrowing and grumbling and in debt.

"'I find that the 12½ per cent keeps them hustling to write up their own orders, that 7 per cent on floor sales keeps them from worrying about the customers they drive into the store, and that the $12 drawing account gives them a little ready money to use during the month.

"If a salesman does not make his weekly drawing account of $12, he is not interested in his work and had better get into some other line of business."

Another man expresses his opinion as follows:

"I believe that by all odds the best system of paying men is to make a contract for at least a six months' period at a definite salary, and to credit the man with commission on all appliances sold.

"If this credit on commission exceeds his salary at the end of the six months' period, we pay him this excess as a bonus. I have tried this method with very good success, and have even gone farther and guaranteed that if we made a new contract at the end of the six months' period to base the new salary on an average of the two lowest months in the last six months' period. This system seems to combine most of the good points of the various plans."

Salary and Commission

Systems which pay the salesmen a definite amount each month in addition to an amount based upon a percentage or upon percentages of the gross appliance sales for the month have been classified as salary and commission systems.

Company No.	Salary	% Com.	Av. Salary per Month	Av. Salary Floor Salesmen	Av. Salary Special Salesmen	Av. Territory —per Man— Meters	Pop.
201	$51.50	10	$118.00	$77.00	$129.00	7,500	33,000
202	100.00	5	125.00	.....	.....	1,800	12,000
203	60.00	5	200.00	90.00	.....	1,900	15,000
204	65.00	5	100.00	80.00	.....	2,600	13,500
205	100.00	5	125.00	.....	.....	4,000	16,600
206	65.00	5	95.00	.....	.....	1,000	10,000
207	51.50	5	85.50	83.33	.....	2,000	6,400
208	50.00	5	100.00	.....	150.00	5,100	22,000
209	50.00	10	112.50	.....	.....	1,600	15,000
210	50.00	10	100.00	100.00	150.00	2,500	10,500
211	84.00	5	128.00	.....	.....	1,600	21,000
212	30.00	10	95.00	80.00	.....	4,500	28,000
213	64.50	5	.....	.....	.....	450	6,800
214	80.00	5	102.50	91.00	.....	4,350	25,000
215	56.00	1	67.50	65.00	96.00	5,000	28,800
216	50.00	5	100.00	.....	.....	2,000	10,000
217	55.00	.5	91.00	48.00	100.00	3,000	15,000
218	40.00	10	95.00	.....	.....	970	6,800
219	50.00	10	170.00	115.00	200.00	2,980	15,000
220	50.00	3-10	.....	.....	.....	.....	.....
Aver.	60.13	6.37	111.72	82.93	137.50	2,780	16,330

In a majority of cases the same commission is paid on all appliances throughout the year. This is varied by one company, which changes its figures from month to month, so as to encourage the sale of certain appliances when desired, and also to help the salesmen during the leaner months.

Another scheme provides for a reward or bonus at the end of the year based upon the gross merchandise sales for the year.

A variation of the fixed commission plan is described as follows:

Our outside salesmen are paid a guaranteed salary and a commission based on 15 per cent of the guarantee and 5 per cent on all sales in excess of the guaranteed salary. The amount of the salary is fixed by the experience the salesman has had before taking up his work with us. For instance, most of our experienced

(*Continued on page* 278)

Styles Three-Charge System the Highest Development in Public Utility Rate Making

J. M. Spitzglass Presents Arguments in Support of This Contention—Analyzing and Determining Actual Cost of Service

The highest development of the subject of rate-making for public utilities as it stands at present consists of the so-called three-charge system, declared J. M. Spitzglass, consulting engineer, of Chicago, in a paper presented at the annual convention of the Illinois Gas Association, held in that city March 20. This system recognizes the fact that a part of the expenses is incurred as a result of acquiring merely a number of customers, another part by providing for the possible demand or the capacity of those customers, and a third part by the amount of product actually supplied to the customers.

Cost of Service

All these methods are based on the main principle that charges for service should always follow the cost of the service to the company. It must be realized that any deviation from this principle will work, first against the interest of the company, and eventually against the interest of all the consumers served by the company.

There are many advocates of this idea of reducing prices to profitable consumers, and some of them are trying to express the same under a term "value of service" instead of "cost of service." The change of the term, however, instead of explaining the idea any better, rather confuses the subject at issue. It appears as though it is meant to charge less than cost where the product has no more value to the consumer, which would be similar to the practice of destructive competition in the open market. It will be found that in a public utility service the actual cost of the service, or the expense incurred for the consumer, is the best guide for adjusting the charge to the various consumers.

Origin of Expenses

Having established the main principle, that the cost of service is the true basis of rates for a public utility, the next problem is to determine the probable cost to the company of serving the various classes of consumers.

From what has been said before, it can be seen very clearly that certain expenses carried by the company are originated by the mere fact of having a number of customers. Other expenses carried by the company are originated by providing the equipment that is necessary for taking care of the individual and collective demands of those customers. Still other expenses are originated by the actual production of the gas consumed by the customers.

The main difficulty, however, lies in the fact that in such collective organizations the various items of expense cannot be readily traced to the respective causes by which they are originated. The methods which have been advanced heretofore for apportioning expenses in rate-making vary greatly in form and extent, and in most cases they were mainly based on mere opinion and not on any definite and tangible rules for their classification.

The customer has the choice, individually, of applying for the service of the company, and, therefore, he is individually responsible for his portion of expenses which the company incurs because of the number of customers.

The customer has the choice of indicating the expense of the possible or probable demand in the same manner as he would if he were to provide the necessary equipment himself. This estimate determines his capacity of using the services of the company, and, therefore, he is individually responsible for the portion of the expenses incurred by the company to provide and maintain the equipment necessary to take care of his given capacity.

The customer has the choice of using the product as much as he pleases to the limit of his capacity, and, therefore, he is responsible for the portion of the expenses incurred by the company in providing the necessary product.

Each one of these divisions will in turn contain a number of expense items which are necessitated merely by the collectiveness of the work, but each customer is only responsible to the extent of the use that he chooses to make of the given division of the service.

In the actual subdivision of expenses, the following characteristics may be used as a guide in apportioning the various expenses under the major title of customer, capacity and output.

Customer Expense

To be classified under customer, an item of expense must be:

1. A direct necessity for the efficient merchandising of the product.
2. Of such a nature that each individual customer is likely to require an equal share of attention or service in originating the expense.
3. The cost of the item should, within practical limits be proportional to the number of customers served.

Capacity Expense

To be classified under capacity, an item of expense must be:

1. A direct necessity for the efficient production or the delivery of the gas.
2. Of such a nature that it has to be provided in a measure sufficient to take care of the possible maximum demand on the function originating the expense.
3. The cost of the item is not influenced by the variation of demand on the function.

Output Expense

To be classified under output, an item of expense must be:

1. A direct necessity for the efficient production or the delivery of the gas.

2. The cost of the item to be, within practical limits, directly proportional to the quantity of gas in cubic feet produced or delivered.

General Expense

1. Items that are related to more than one major title are distributed between the major titles in proportion to the total expenses to which they are related.

2. Items that are direct or indirect necessities for the benefit of the entire organization are classified under "general," and are distributed in proportion to the total expenses carried by the company.

The equity of these rules can be realized more fully by considering the case of an individual who had to duplicate a similar service by building an isolated plant and having it operated for his individual use.

In building such a plant the individual would be guided to a certain extent by the possible maximum demand that he expects to need in the immediate future. He would estimate the capacity needed, add a margin for safety and pay for the full equipment irrespective of the fact that the actual maximum demand may never reach the full capacity of the equipment.

After the individual plant is built and is equipped in a measure to take care of the estimated capacity, or to provide the estimated capacity for the given individual, all the investment charges and maintenance costs are identically the same whether the plant is being continually operated or not.

In the case of a collective organization the expense incurred in providing for the capacity of the customers is also entirely fixed during the whole year, and the actual demand of those customers varies very much from day to day, and still more from hour to hour.

The total capacity, of course, is well in excess of the daily maximum or the hourly maximum demand as it should be in order to provide safely for what is expected to be the probable maximum demand at any time during the year. It is obvious, however, that the expense incurred by the investment and the maintenance of the equipment is fixed by the 100 per cent line of providing for the total capacity, and is entirely independent of the variations in the use of this capacity from day to day or from hour to hour.

Thus it is seen that the expenses of a collective organization are made practically on the same basis as those of an isolated plant. For their proper classification the line of division can be drawn more closely by comparing them with those of the isolated individual plant.

In allocating the accounts it will be found in many cases that a capacity expense can be recognized by one characteristic, namely, that it would continue practically the same for an individual consumer with an isolated plant at the time the plant is not in operation, but is being maintained in good condition for future use.

In the same manner an output expense can be recognized by the fact that it would occur in an isolated plant only when it is being operated.

The Unit Cost

The best method of apportioning the expenses for the purpose of determining the actual cost of service to the customer is to consider the company as being actually divided into three independent departments.

First, the customers' department, which is established for taking care of the customers' applications, bills, collections and of attending to complaints and the various other items of which each customer is liable to require an equal share of attention.

Second, a capacity department, which is necessary for taking care of the customers' probable demands and for providing the necessary equipment, which for the sake of economy is provided in a measure to take care of the needs of all the customers collectively.

Third, the output department, which is necessary for taking care of the manufacture and the delivery of the product for consumption.

By following the characteristics of the major items as outlined above, practically all accounts of the company can be cleared or allotted to these three departments. Those items which would refer to two or to all three departments would have to be subdivided over the direct expenses of each department.

When the actual expenses for any given period are separated into the three departments of customers, capacity and output, it is important to determine the unit customer's expense, the unit capacity expense and the unit output expense.

The determination of the customer unit and the output unit expenses present no difficulty, because the number of the customers and corresponding output of each customer are always well known. But in order to determine the unit capacity expense this information is not available and so it is necessary to obtain a practical record of the respective capacity of the various customers. This is actually being done in one way or another practically by all electric companies. Some are using the so-called active capacity or demand, which is done by determining the actual demand of the various classes of customers. Others estimate the relation between the active capacity or demand of the customer and his actual capacity. It appears, however, that less discrepancies would result if the total capacity of the customer, which is always estimated, were used also as a guide in determining the unit capacity cost, because that capacity is provided not for the actual demand of the customer, but for his probable demand, which, in turn, can be estimated more closely from his capacity or possible demand than from any other factors that may be considered.

Modified Differential Rates

We have laid special emphasis upon the determination of the unit cost of service, while cognizant of the fact that a rate based upon the actual cost can hardly be adhered to. This is especially true in the cases of the gas utilities, where the small or short-hour users of the equipment have enjoyed the advantages of being supplied at a loss to the company for so long a time as to make it impracticable to readjust charges to follow the actual cost of the service.

But, assuming that the conditions are such that prices cannot be increased at all to those who are supplied at a loss to the company, there should be no objection

to such differential rates which will reduce the charges to the long-hour customers in order to induce such customers to use gas in preference to other fuels.

It is obvious, therefore, that in all cases the cost of service must be carefully studied in order to determine which are the customers on whom a profit is made, and to what extent their prices could be reduced for the better development of the business. The cost of the service must be definitely known before any modified or special rate can be considered.

In deviating from the theoretical or cost-of-service rate, there are no limits to the combinations of rates that may be proposed. The following types of differential rates will illustrate the varieties that are used in one form or another at present:

A. Rates including a fixed initial charge to each customer and a flat meter rate for all the gas consumed by the customer. The difference between this rate and the cost of service or scientific rate is that the initial charge is an arbitrary amount, not necessarily the sum of customer and capacity expenses, and the meter rate per thousand cubic feet is not the output cost.

B. Rates including an initial charge varying with the capacity of the customer and a flat meter rate for the gas consumed by the customer. This rate approaches more closely to the scientific or cost-of-service rate.

C. The block rate, or sliding scale of prices. This form provides for a higher price for the first block, and reduced prices for each succeeding block.

D. The block rate or sliding scale, in which the quantity of each block is varied proportionately with the capacity or possible demand of the customer.

E. Rates including a fixed or variable initial charge to each customer and a sliding scale of prices for the gas consumed.

F. Optional cost of service rate to those who will profit by it, and flat meter rate to the balance of customers.

G. Minimum bill covering a quantity of gas, and a flat meter rate for all gas above this quantity.

H. Minimum bill covering a quantity of gas and a sliding scale of prices for gas above this quantity.

I. Minimum bill covering a quantity of gas and a sliding scale in which the quantity of each block is varied proportionately with the capacity or possible demand of the customer.

The choice of a modified differential rate is rather arbitrary, and depends upon the local conditions in each given case. There is always the necessity, however, of seeing that the aggregate of receipts shall cover the actual cost for the same rate of consumption. It is also necessary to analyze the modified rate with regard to its effect upon the various customers, and how it compares with the actual cost and also with the average rate per thousand.

Conclusion

It is a fact established beyond doubt that the practical application of scientific rates has been the greatest factor in the development of the electric utility business. It has been shown lately that the various gas companies who have adopted similar systems of differential rates have also achieved very gratifying and successful results.

Practically in all cases the scientific study of rates dissolves itself into a systematic study of costs and the proper analysis and apportionment of expenses. The knowledge of the actual cost of service to the various consumers has a great intrinsic value in itself. When the company is confronted with the necessity of a general reduction in the price of the product, it is especially advantageous to know the actual cost of the product to the various consumers in order to know how far to reduce the price to those who are profitable and to insure their use of the supply.

In analyzing the actual cost of the service it will be found that the average price per thousand cubic feet intercepts the cost line at the average consumption for a given capacity of the customer. When a reduction in the price is necessary it is most advantageous to let the per cent of reduction for every step be proportional to the per cent of the reduction in the cost, and to let the step begin reasonably from the point of the average consumption for a given capacity, because the reduction to the small consumer, so long as it is the same percentage of the reduced cost, will be compensated by an equal development of the business as a reduction to the large consumer. And, since the small consumer forms the basic part of the business, he should be assured of the same treatment as the large consumer, and should also be given the same proportional reduction in price as determined by the reduction in the cost of serving him.

In a previous paper on the subject the writer made the following pertinent recommendations which were intended for the development of cost analysis and the determination of proper rates. Those recommendations are especially fitted to the needs of gas utilities at the present:

1. Whatever system of accounting you employ, and whether you consider differentiating your rates immediately or not, have all the accounts of your system cleared regularly into the departments of customer, capacity and output. This will enable you to determine the actual cost of service to the various consumers, and to know definitely which customer is supplied at a loss, and which brings in a profit.

2. As you know the number of your customers and the corresponding output for each customer, you should also establish a practical record of the respective capacity of those customers as is done in one day or another by practically all electric companies. This will involve an additional expense to the company, but the expense will be a mere trifle, probably a little more than reading a meter. But it has to be done only once a year for each customer, and, besides, the record of the capacity is no less important than the record of the consumption.

3. Establish a system of unit cost for each department, and let your records show from month to month: (a) Unit cost per customer each month; (b) unit capacity cost per ⅜-in. opening (10 cu. ft. per hour capacity) each month; (c) unit cost per thousand cubic feet of gas produced and delivered to the customer.

4. Abolish the practice of recording the various customer and capacity expenses as so much per thousand cubic feet of gas, because there is no relation between these expenses and the quantity of gas produced. While you may not have recognized this fact, this has been done by the public utilities commissions, and you must allocate these expenses where they rightly belong before you can use them for practical rate-making.

5. Encourage the establishment of a central bureau on rate standards. This is of vital importance to the gas industry, and would serve as a clearing house on rate differentials for the individual companies. This bureau should have a permanent headquarters at which to collect all necessary material and data on rates and allied subjects. With such a bureau it would be possible for the companies to work hand in hand with utility commissions, and to incorporate correct principles in rate practice.

The need of such a co-operation has long been recognized in the gas industry, and its realization is probably a matter of the near future. It is hoped that the discussion brought about by this paper will demonstrate the necessity of analyzing and determining the actual cost of the service and the necessity of developing and adopting the correct principles in rate practice.

A Crime to Burden the Railroads with Hauling Dirt When It Is Within Our Power to Ship Clean Coal

E. G. Bailey Declares the Alternative for Next Winter Is Either to Compel Operators to Ship Clean Coal or Heatless Holidays—No Excuse for Slate and Dirt Ridden Coals that Are Being Sent Out

The biggest and most important question before the American people to-day is the coal problem, declared E. G. Bailey in his J. E. Aldred Lecture on Engineering Practice at Johns Hopkins University, Baltimore, Md., Feb. 27. Some may disagree and claim that it is transportation. But sift the present situation to the bottom, and you will find that the coal problem, or rather the abnormally high percentage of ash and impurities in the coal is like sand in the bearings of transportation, of ocean shipping and of practically all industries, slowing them down at the most critical time in our history.

The less ash and impurities in coal, the less number of tons you need. The greater the demand for coal, the higher the price, and, under present conditions, the poorer its quality. The price has been regulated, but the quality has run riot.

Heat Units in Their Most Concentrated Form

Why have we allowed this to happen just at the time when we need heat units in their most concentrated form? Why are the railroads burdened to-day with hauling millions of tons of utterly worthless dirt? To say that this excess of ash in the coal is worthless does not describe the situation. The price paid for this dirt is only a small fraction of the damage. The rest of its cost is in the decreased efficiency, the lowered capacity, the increased labor and the excessive repair bills involved in the combustion of this coal, and in the necessity of closing down industries because of the lack of the coal which might have been shipped in place of these so-called "worthless," but really exceedingly costly, impurities.

Coal Shortage or Dirt?

Results show a 10 per cent decrease in quality of coal delivered to many plants during the past year. Considering that the Navy and other Government requirements receive a greatly increased tonnage of the best coal, a very conservative estimate of 5 per cent is made as representing the increased demand for coal, due solely to the poorer quality of that received. With a total production of about 600,000,000 tons of coal in 1917, this means that 30,000,000 tons of utterly worthless slate and dirt were loaded into railroad cars and delivered to the consumer, where it caused additional trouble in burning the coal with which it was mixed.

Cost of Dirty Coal

On the basis of the average price of coal delivered to the consumer being $4 per ton, this excessive amount of impurities has cost the country $120,000,000 during the past year. Adding to this the various estimates made of the cost of our heatless holidays, ranging from $1,000,000,000 on up, it is obvious that this question of impurities in coal is of such tremendous importance that an effective remedy must be found immediately. Manufacturers would be glad to pay a dollar per ton more for coal if they could get what they need and of standard quality.

Competition normally compels the mine operator to clean his coal, but when the coal shortage began in 1916 manufacturers were so anxious to get coal that they offered and gladly paid prices of $5 to $6 per ton at the mines and took anything that was black, regardless of the percentage of impurities which it contained. For this reason quality went from bad to worse. A similar condition existed in the bituminous coal industry during the anthracite strike of 1902 and 1903.

Prices went sky high and quality dropped off decidedly.

The same economic factors which caused this condition then prevail to-day. Under the present system of paying the operator prices fixed by the Government, no distinction whatever is made between the best and poorest grades of coal. They both command the same price, so why should one operator go to additional expense of shipping clean coal when he receives no more pay than his competitor who loads dirt?

What Is the Remedy?

To simply appeal to the miners and operators, even on the grounds of patriotism, is not sufficient. To increase the Government price on the present basis of control to $5 per ton at the mines would not reduce the percentage of impurities in the coal one iota. We must apply a remedy that has some economic foundation.

The remedy suggested is to establish standards of quality and pay a premium for clean coal. The price paid to the operator should be based on standards established by the Fuel Administration according to different mining districts, etc., with premiums based almost entirely upon percentage of ash, and especially the free ash, as slate and rock, which can and should be eliminated at the mines.

Coal sampling stations should be established by the Government at certain central points where large quantities of coal are received direct from mines, such as

New York, Philadelphia, Baltimore, Hampton Roads, and the lake loading ports, each station being equipped with machinery for obtaining representative samples from as many individual cars as necessary to determine the average quality of coal shipped from each mine during each month.

Load Cars with the Cleanest Coal

The operator would not know what cars were to be sampled, for the Fuel Administration could consign or reconsign any cars in transit to the coal piers or power houses where the sampling stations were located. The mine operator would therefore have a real incentive to load every car with as clean coal as possible.

The car distribution at the mines, which is an important point to the operator, should also be based upon the quality of coal produced, so that there would be an added incentive to load clean coal, and the market would be supplied with a greater proportion of the better quality of coal than if the empty cars were prorated equally among the poorer and better mines as at present.

Actual knowledge of the quality of coal would also be of great benefit to the Fuel Administration in classifying various mines into pools, so that the consumer, and particularly the railroads, would receive coal of uniform quality, thereby enabling them to obtain maximum capacity and efficiency in the combustion of this coal.

Efficiency in Burning Coal

There is sufficient labor at the mines to clean the coal, and the railroads can haul enough good coal, but they cannot get the necessary heat units to the consumer if they must be burdened with hauling 30,000,000 tons of unnecessary dirt. We have our choice of either building thousands of locomotives and a hundred thousand cars and adding to the terminal facilities of our railroads within the next few months or removing the excessive impurities from the coal. The latter can be done quickly and effectively. It is the only feasible remedy for our present coal problem.

It is also urged that all power-plant engineers of the country put forth every effort to obtain maximum efficiency from the combustion of coal. A few simple points in regard to improving the work of the fireman, by observing the appearance of the flame from the boiler furnace and maintaining boilers and baffles in good condition, will lead to worth-while results.

Clean Coal or Heatless Holidays Next Winter?

Are we going to have coal enough to see us through the coming winter? The present indications are that unless some radical steps are taken immediately, the coal shortage will be much worse than it has been. To be satisfied with preferential shipments and permit many of our basic industries to close down is to play the quitter's game, when, by concentrating our efforts on loading clean coal at the mines, and improving the efficiency of its combustion in furnaces, we can have ample coal for all, thereby helping instead of hindering the thrift campaign.

We have heard the argument that we should be patriotic and be content with inferior coal, old culm banks and other refuse fuel the same as we are with wheat substitutes in our bread. But the food and fuel problems are very different. Economy in their use applies equally to both, but the neck of the bottle of the food question is production, while the weakest link of the coal problem is transportation. It is a crime to burden our railroads with hauling dirt when it is within our power to ship clean coal and supply heat units in their most concentrated form.

How the Gas Companies Are Helping the Nation

The H. M. Byllesby & Company officers and employees in the Chicago office have subscribed a sum of money to the fatherless children of France sufficient to contribute to the support of fifteen French orphans for the period of one year. The policy of the society is to maintain the children in their own homes, to be brought up by their mothers in the religion of their fathers.

Jay Brunk, formerly employed by the Akron Natural Gas Company, Ltd., Akron, N. Y., is now with Company M, 309th Infantry, Camp Dix, N. J.

The Medina Gas & Fuel Company, Medina, Ohio, has an honor Roll containing the following employees' names:

C. A. Baird, Geologist	Aviation Service
John Benbow, Tool Dresser	U. S. Army
Frank Brown, Bookkeeper	U. S. Army
Ward Coleman, Chauffeur	U. S. Army
A. N. Dangerfield, Geologist	Naval Reserve Flying Corps
Fred Dower, Well Driller	U. S. Army
Sam Dunlap, Chief Engineer	Aviation Service
Capt. E. H. Finke, Asst. Superintendent	U. S. Army
Albert W. Goldsbarry, Chemist	Field Service
O. C. Harper, Geologist	Aviation Service
L. W. Keslar, Geologist	Aviation Service
Jameson Lewis, Draftsman	U. S. Army
R. D. Miller, Tool Dresser	U. S. Army
Carl Nue, Laborer	U. S. Army
Will Olsen, Laborer	U. S. Army
W. B. Sprague, Geologist	U. S. Ambulance Service
John Toomey, Laborer	U. S. Army

J. A. Lambert entered the Quartermaster General's Office, Washington, D. C., Jan. 18, 1918, as sergeant. He was formerly employed in the street main department of the Atlanta Gas Light Company, Atlanta, Ga.

Arthur Hegney, eighteen years of age, who was in the employ of the Brooklyn Union Gas Company as floor salesman of the Metropolitan Branch, died recently in the service of the United States. He joined the 7th Regiment in May, 1917, and when the 69th, now known as the 165th Rainbow Division, was slated for service he asked to be transferred. With the Rainbow Division he went to Camp Mills, and on Oct. 27 left for France. On Jan. 3 he was appointed signal man at headquarters. A telegram was recently received from Adjutant General McCain stating that he was killed in action.

THE NORTHERN LIBERTIES GAS COMPANY of Philadelphia, Pa., has the following employees among those on its Honor Roll:

John Cavanaugh.....Naval Coast Defense Reserve Force
Joseph W. Roberts.....Bat. F, 2nd Pa. Artillery
John A. Tacketts.....U. S. Coast Defense

THE NORTHERN INDIANA GAS & ELECTRIC COMPANY, of South Bend, Ind., has the following employees in the Government service:

A. DeWesplaer.....Machine Gun Co., 3rd Ind. Infantry
Chester H. Roberts.....U. S. Navy
Jos. Williams, Jr.....U. S. Navy

H. H. JONES, manager of the San Diego Consolidated Gas & Electric Company, of San Diego, Cal., has been appointed chairman of the finance committee of the San Diego Branch of the American Red Cross.

E. E. SANFORD, of the securities department of the Northern States Power Company, St. Paul, Minn., will serve as a major during the next Liberty Loan drive for St. Paul, having charge of ten teams of solicitors for the St. Paul district. Mr. Sanford has also been appointed a member of the committee on legislative research and recommendation of the St. Paul Association of Commerce.

EARL CARROLL is the latest member of the Public Service Company of Northern Illinois force to enter the service of Uncle Sam. He has enlisted in the 30th Engineers, the so-called gas and flame regiment.

R. J. AMBLER, son of T. M. Ambler, of the Brooklyn Union Gas Company, formerly a second lieutenant stationed at Camp Meade, has been promoted to first lieutenant.

H. M. BYLLESBY & COMPANY recently compiled a list showing the number of its employees and those of its affiliated companies who are already in the national service and those who are subject to draft, also the percentage of employees at each company. The following is the national service record of the Byllesby company and its affiliated gas companies:

Property		Percentage of Men Military Age in Active Service	No. Male Employees at Properties, All Ages	No. Enlisted	No. Drafted	No. Subject to Draft, Not Yet Called	Total No. Men in Active Service	Percentage of Men in Service of Entire Male Forces Employed
H. M. Byllesby & Co.	Chicago office	48.7	102	24	0	26	24	23.5
H. M. Byllesby & Co.	New York office	66.6	8	2	0	1	2	25.0
Oklahoma Gas & Elec. Co.	Drumright, Okla.	6.6	17	1	0	14	1	5.7
Oklahoma Gas & Elec. Co.	El Reno, Okla.	60.0	19	1	2	2	3	15.6
Oklahoma Gas & Elec. Co.	Enid, Okla.	28.4	29	2	0	5	2	6.9
Western States G. & E. Co.	Eureka, Cal.	53.6	73	12	6	13	15	20.5
Everett Gas Co.	Everett, Wash.	50.0	38	4	0	4	4	10.5
Union Lt., Ht. & Power Co.	Fargo, N. D.	44.2	122	7	12	24	19	15.6
Louisville Gas & Elec. Co.	Louisville, Ky.	19.8	475	23	2	101	25	5.3
Muskogee Gas & Elec. Co.	Muskogee, Okla.	6.6	47	1	0	14	1	2.1
Oklahoma Gas & Elec. Co.	Norman, Okla.	....	10	0	0	1	0	....
Oklahoma Gas & Elec. Co.	Okla. City, Okla.	12.5	206	3	0	21	3	1.5
Ottumwa Rwy. & Lt. Co.	Ottumwa, Iowa	80.0	126	4	0	1	4	3.2
Western States G. & E. Co.	Richmond, Cal.	75.0	19	1	2	1	3	16.3
San Diego Cons. G & E. Co.	San Diego, Cal.	36.3	485	56	9	111	65	13.4
Western States G. & E. Co.	Stockton, Cal.	16.5	285	10	1	56	11	3.9
Tacoma Gas Co.	Tacoma, Wash.	27.5	93	9	2	29	11	11.8

American and English Income Taxes

In comparison with the tax levied in England on incomes our own income taxes are moderate, indeed.

In England the tax on incomes of $1,000 is 4½ per cent, in America nothing.

In England the tax on incomes of $1,500 is 6¾ per cent; in America nothing for married men or heads of families and 2 per cent on $500 for an unmarried man.

In England the tax on an income of $2,000 is 7⅞ per cent; in America nothing for a married man or head of a family, and 2 per cent on $1,000 for unmarried men.

The English income tax rate also increases more rapidly with the growth of the income than ours, a $3,000 income being taxed 14 per cent, $5,000 16 per cent, $10,000 20 per cent, and $15,000 25 per cent, while our corresponding taxes for married men are, respectively, two-thirds of 1 per cent, 1½ per cent, 3½ per cent and 5 per cent, and only slightly more for the unmarried, due to the smaller amount exempted, the rate being the same.

United States Doing Better Than England On War Savings

For their respective first three months the American War-Savings Campaign is running ahead of the English campaign. America is pouring into the treasury at the rate of about $2,000,000 a day—over $75,000,000 up to date.

The direct comparison is:

	England	America
First month	$5,172,000	$10,236,451
Second month	2,719,000	24,559,722
Third month	3,402,000	41,148,244
Total	$11,293,000	$75,944,417

The $75,944,417 of spending already put at the service of the Government by the buyers of war-savings securities has transferred from millions of patriotic, saving citizens to the National Treasury command of the labor and materials to build a fleet of about 100 5,000-ton ships.

St. Vincent's Hospital Installation Makes Portland, Ore., a Town of All-Gas Kitchens, with One Exception, So Far as Hotels, Hospitals, and Restaurants Are Concerned

Increased Gas Consumption of 82,000 Cu. Ft. Per Month—Saving in Cost to Institution $21.60 in Fuel Bills and Elimination of Fire-Tending Labor

By R. B. SCARLETT
Portland Gas and Coke Company, Portland, Ore.

Portland, Ore., insofar as the hotel, hospital and restaurant end is concerned, has become an all-gas kitchen city with one exception. An installation at St. Vincent's Hospital brought the progress of the Portland Gas & Coke Company up to this point.

The installation consists of four sections of No. 45-26 Garland hotel range with solid top and brick lined.

The hospital is the largest of its kind in the city, and has on an average of about 400 patients. In addition to the patients there are about 260 employees.

The installation replaced six sections French range in the main kitchen of the hospital. Wood and coal were formerly used as fuel. The piping and vent connections were made by G. M. Ely, chief engineer, and his assistants. A representative of the gas company was also present to offer suggestions and assist in whatever adjustment, etc., that was needed.

The gas ranges were set back to back. The top opening of the vent was then closed with a metal plate and a hole cut in the vent chamber at the rear of the stoves, and each vent run separately into a 14-in. galvanized stack back of the stoves, each having its own damper control. The main duct was then run to the chimney and an opening cut about 18 in. from the floor. This gives the help clear surface on all four sections, thereby eliminating any light obstructions.

Cost of Operating Former Equipment

As stated before, the kitchen was formerly fired with wood and coal. They were paying $10 per ton for coal and using about 2 tons per month. They have their own timber tract just outside of the city, and the only expense for wood was hauling and cutting. It required about 4 cords of wood per month, which, if they had to buy from a wood dealer, would cost $6.50 per cord, or $26 per month, and $20 for 2 tons of coal, making a total of $46 per month, not to speak of the time required for handling the fuel and ashes. The kitchen help save about two hours time per day.

This hard fuel cost is based on the existing prices of 1916, when fuel was much cheaper than it is this year.

(*Continued on page* 286)

INSTALLATION WHICH BRINGS PORTLAND, ORE., TO A HIGH POINT IN SATURATION IN INSTITUTION ALL-GAS KITCHENS

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Dr. Arthur H. Elliott

With the passing away of Dr. Arthur H. Elliott, the gas industry loses one who had a large part in its development.

His death does not come as a shock for which those who knew him were altogether unprepared. For some months tidings have been broadcast that his health was failing. Yet many will feel in his loss a sense of personal bereavement; the reward most men reap who have in their lifetime unfailingly manifested in the kindly willingness to help others that was a characteristic of Dr. Elliott.

None feels his loss more keenly than does this Journal, which Dr. Elliott knew best under its original name, The American Gas Light Journal. He was to the Journal a friend indeed—not merely a passive friend, but one who exerted himself on numerous occasions without reward or publicity in its upbuilding.

The "Old Man" Back at the Helm in the Commercial Department

There came a time in the gas industry when we discovered that we were mighty good engineers, but poor salesmen. The manufacturing, distribution and utilization ends were developed to the top notch, but with the best sort of a product in the world on our hands we were not selling it.

Then came the commercial era. Men to handle the selling end were selected in many cases for their ability as salesmen rather than for their knowledge of the product they were selling. In our eagerness to turn over a new leaf, to start off with a clean slate and no obstructions in the way, too many gas companies went a step too far. They placed everything in the commercial department, not only the sale of the appliances, but its selection as well, in the hands of these essentially sales specialists.

The result in many cases has been disastrous. Appliances that have not only proved inefficient, but distinctly dangerous as well, have been put out with the stamp of approval of the gas company upon them. And the man who made the gas company responsible for them was no better fitted to determine their worth than the average consumer, who was the final purchaser, would have been.

This situation was not the fault of the commercial man. He was simply the victim of the error of the management. A task was placed upon his shoulders that he never should have had to carry.

But the war has seen many vacancies occur in commercial departments. Someone has had to assume the task these vacancies left with no one to handle. Quite a number of them are being taken up by the manager. The "old man" is coming back on the job he washed his hands of when the commercial era started. The

effect we believe is going to prove beneficial.

He's going to find conditions in the commercial department that will make his hair stand on end. He's going to find appliances in stock that he would no more think of putting into a consumer's house than he would a flaming torch. There are going to be readjustments and rearrangements. Appliances will be selected hereafter on a scientific basis, not on the basis of a low price and the word of an overplausible salesman.

Increased Appliance Efficiencies

It would be impossible to find an appliance so efficient that there is no room for improvement. Some have been brought to a degree of efficiency that, compared to what we had to be content with a few years ago, is truly remarkable, yet even they can be improved. Others are remarkable mainly for their very inefficiency. Both types find a sufficient market to keep the works going, but it must be confessed the margin of profit of the better type is discouragingly close.

These are days when it is not coal we want, or gas, or electricity. It is heat units in their most concentrated form that is wanted. It is a time when gas and electric companies themselves are more interested even than the consumer in having *efficient* appliances in use.

There have been times when we rejoiced in each additional thousand cubic feet of gas that was added to our lines. We learned long ago that loads that were dependent upon wasteful usage were not unmitigated blessings, especially in the case of the mantle lamp as against the open-flame burner.

No gas company to-day will willfully put an appliance on its mains that it knows to be inefficient. But some companies have been woefully credulous, or did not have in charge of the selection a man qualified to select intelligently.

There are many companies in the country which, after the strain of last winter, could view with complacency a falling off in the load. There are some even who would regard such a contingency as a lesser misfortune than a radical increase would be.

The AMERICAN GAS ENGINEERING JOURNAL does not believe there will or can be any falling off in loads within the next year, regardless of the attitude any company may take. Whether the companies themselves sell one appliance or not there will be a decided increase.

Sooner or later there will have to be new construction and extensions to meet it. This is inevitable. With the Government needing more toluol than is in sight, and increased output of gas being the most direct means of getting it, with the National Fuel Administrator—properly, too—advising the public in published advertisements to "use gas wherever possible for cooking and heating," what else could transpire?

Many gas companies almost pray for relief from the demands for their product that they are meeting. Some have endeavored to obtain it themselves in ceasing from merchandising, and have accomplished the reverse—have been the cause of hundreds of inefficient appliances being added to the load by dealers, etc.

There is no means of holding back a constantly increasing demand for gas. If there was, it is a question, in view of the Fuel Administrator's advertisements, and the need of toluol, if it would not be deliberately unpatriotic to adopt it.

There is a means of providing a buffer, however—something to ease off the strain until enlarged manufacturing and distributing facilities can be provided. That is by buying and selling appliances exclusively on the basis of efficiency.

What could we accomplish, if it was practically possible, were we to call in every gas range in use and replace it by the most efficient gas range that can now be obtained, by following the same course with lighting equipment, water heaters, house heaters, industrial burners, and even the gas iron. There would be a decided relief in the general demand almost over night.

Such a thing, however, is impossible. But it is not impossible to work in that direction to a limited degree, and to make sure that each new customer we add is not burning any more gas than the work he is doing requires.

There are no appliances that are 100 per cent efficient. There are some which approach nearer to that point than others, and the one that approaches the nearest is the one the gas company should interest itself in putting into its consumers' premises. It is superfluous to add that the gas company should have some more substantial proof that the appliance does represent the highest efficiency than the mere say-so of the manufacturer's representative.

Paving the Way to Future Success

The Pittsfield (Mass.) Electric Company has taken a step that strongly appeals to the merchandising sense. For the ostensible purpose of helping to conserve the coal supply it has offered to loan electric irons to its consumers until July 15 without charge and without obligation. If at the expiration of the loan period the customer wishes to keep the iron the company will sell it on the instalment plan.

The AMERICAN GAS ENGINEERING JOURNAL does not question the sincerity of the company's desire to be of help in coal conservation, or that its plan will prove effective in accomplishing to an appreciable degree this primary purpose. But the fact that there is likely to be a very desirable by-product from this act of "service" cannot be ignored. In fact, we are very strongly of the opinion that, in the long run, the Pittsfield Electric Company will find this act of public spiritedness has proved a very profitable undertaking.

The average housewife is not as progressive and up-

to-date in her knowledge of improvements and developments in household appliances as women's magazines and women's pages in our daily newspapers would influence us to believe. The age-old fiber broom is selling as high as fifty cents, but it is still selling.

The average housewife distrusts these new-fangled contraptions. Unless she is sociable she will not even give the salesman a chance to demonstrate them to her, and those who do are not in general greatly impressed. It works all right for the salesman, but it wouldn't work necessarily for her. He knows all about it; something she, too, might attain, but she would rather do the extra work than try to qualify as an expert mechanic.

The Pittsfield company puts the iron in her hands with a real motive for using it, even if it adds to her perplexities. She is given a chance to find out for herself. And there is the knowledge in the back of her mind that the company has none of her money, and there is no obligation attached. If this plan doesn't result in a considerable sale of irons within the near future, the electric iron is a much less efficient appliance than we believe it to be.

All Systems for Renumeration of Salesmen Find Enthusiastic Advocates

(*Continued from page* 268)

salesmen are guaranteed $80 per month, which would pay a commission of 15 per cent on sales of $534 each month, and 5 per cent on all sales in excess of $534."

The following are some of the opinions expressed regarding the advantages of the salary-commission plan:

"We adopted this system last spring after finding that straight salaries were unsatisfactory, and have been obtaining good results so far and anticipate no change."

"We have tried straight salaries, salary and commission, and the U. G. I. point system, but the salary and commission basis is the only one that has stood the test for this district under local conditions."

Other Systems

Any commission plan which determines the compensation from a table of commissions per appliance—as distinguished from a percentage of the selling price—has been classified under this heading.

The table of commissions may be based either upon the selling price of the appliance, in which case it resembles the other commission systems, or upon the estimated annual gas consumption of the appliance.

Company No.	Minimum Salary	Av. Salary per Month	Av. Salary Floor Salesmen	Av. Salary Special Salesmen	Av. Territory per Man—Meters	Av. Territory per Man—Pop.
301	$100.00	$135.00	$65.00	.....	3,350	21,000
302	50.00-125.00	140.35	70.00	$96.72	5,000	32,000
303	50.00	100.00	.....	100.00	4,000	28,300
304	50.00	85.00	80.00	115.00	1,480	9,300
305	65.00	90.00	70.00	100.00	3,500	33,000
306	.....	92.00	80.00	.....	2,500	9,900
307	50.00 up	90.00	60.00	.....	6,340	38,200
308	50.00 up	83.33	65.00	.....	4,350	24,200
309	65.00	95.00	.....	.....	3,700	38,000
310	75.00	161.00	.....	....	3,500	19,200
311	75.00	92.00	....	.....	4,000	18,900
312	65.00	100.00	60.00	.....	2,300	10,000
313	65.00	111.50	.....	....	2,250	15,500
314	60.00	104.00	62.50	135.00	7,570	39,000
315	75.00	107.00	92.00	215.00	.....	.....
316	75.00	80.00	80.00	125.00	2,800	10,600
317	50.00	.....	.....	.....	5,100	22,500
318	65.00	110.00	105.00	115.00	3,200	25,000
319	75.00	90.00	110.00	125.00	2,160	15,000
Aver.	69.30	103.68	76.88	125.19	3,680	22,600

The following schedule of points is probably one of the most complete that has ever been devised:

POINTS

All-Gas Kitchen

	Sale	Recon.
Coal Water Heater	50	
Combination Gas and Coal Range	35	
Furnace Connection	50	
Kitchen Heater	15	

Automatic Water Heaters

	Sale	Recon.
No. 2 Automatic Water Heater	20	5
No. 3 Automatic Water Heater	30	8
No. 4 Automatic Water Heater	40	10
No. 6 Automatic Water Heater	50	13
No. 8 Automatic Water Heater	60	15
No. 30-30 Storage System	40	10
No. 30-50 Storage System	50	13
No. 200 Storage System	60	15
No. 18 Electric Weld (Automatic)	20	5
No. 24 Electric Weld (Automatic)	30	8
No. 30 Electric Weld (Automatic)	30	8
No. 40 Electric Weld (Automatic)	40	10
No. 52 Electric Weld (Automatic)	50	13
No. 66 Electric Weld (Automatic)	60	15
No. 22 Lovekin (Automatic)	30	8
No. 28 Lovekin (Automatic)	40	10
No. 35 Lovekin (Automatic)	40	10
No. 45 Lovekin (Automatic)	50	13
No. 55 Lovekin (Automatic)	60	15

Factory Appliances

	Sale
Soldering Furnace (Atmospheric) per burner	6
Tailors' Stove, per burner	6

Gas Stoves—Ranges

	Sale
Single Oven, 16 inch	9
Single Oven, 18 inch	12
Single Oven, 22 inch	17
Double Oven, 16 inch	13
Double Oven, 18 inch	17
Double Oven, 22 inch	24
Cabinet (Standard)	24
Cabinet—6 burner top	30
Cabinet—4 burner top and extra oven	30
Cabinet—6 burner top and extra oven	36
Elevated Oven	24

Hotel Appliances

	Sale
Adaco Roaster	20
Cake Griddles, per burner	5
Oyster Cookers, per burner	10

Note—Prospect for other hotel appliances must be referred to the hotel division, and if sale is made within six months points are allowed at 2½ cents per 1,000 cu. ft. estimated consumption.

House Piping

	Sale
House Piping Orders, per outlet	2
House Piping Extensions, per outlet	1

Incandescent Burner Maintenance (I.B.M.)

	Sale
New I.B.M. Contracts—single burners, each	1
New I.B.M. Contracts—Arc Lamps, each	2
Inverted Bowl Fixtures, each	2
Renewals of Contracts (intermittent use of I.B.M. service within a period of one year from date of former cancellation), per contract	2
Renewals of Contracts after a period of one year from date of former cancellation:	
Single Burners, each	1
Arc Lamps, each	2
Inverted Bowl Fixtures, each	2

Illuminating Appliances—Arc Lamps

	Sale
Portico Lamp	4
1 burner—except Portico	10
2 burners	10
3 burners—No. 48 Lamp	10
3 burners—except No. 48 Lamp	15
4 burners	18
5 burners	21

Single Lights—Inverted

	Sale
C-E-Z—No. 730 Light	1
Junior—No. 4 Burner	1
Regular	2

Upright

	Sale
Junior	½
Regular	2
By-pass—Any kind, including concealed	1
Gem Pilot for open flame burner	1
No. 1 Fitting for pilot line for window lights each	1
Posts, per outlet	2

Reflexoliers

	Sale
2 Light	8
3 Light	12
4 Light	16

	Sale
The following illuminating appliances are credited for each dollar of the selling price of the appliance	1
Accessories of Arc Lamps when sold with the lamps as a complete unit:	
Brackets for indoor or outdoor lamps or lights.	
Changing oil lamps to gas.	
Fixtures—including domes—except Reflexoliers.	
Semi-indirect fixtures, 2 points extra per nozzle.	
Ives Daylight Producer, except the light.	
Pendants, including those for arc lamps.	
Pillar cock—used for lighting appliance.	
Portable lamps, except the light.	

Repair parts for single lights and arc lamps, including glassware, mantles and accessories. The accessories of single lights are globes, shades and ornaments, such as prisms, etc. The accessories of arc lamps are additions to the complete unit, such as ornamental housing, ceiling unit, anti-vibrator and magnet cock (complete equipment).

Note.—Where points are given per dollar selling price, the amounts are cumulative for a month; that is, all the amounts are totalled at the end of each calendar month and points calculated from the total sum on this monthly total. No points are given for amounts between 1 cent and 24 cents, inclusive; one-half point is given for amounts between 25 cents and 75 cents, inclusive; one point is given for amounts between 76 cents and $1.

Credits are not given for store or office sales of incandescent repair parts.

Meter Appliances—Miscellaneous Appliances

	Sale
Andes Bath Heater	3
Chafing Dish	5
Cigar Lighters	5
Clothes Dryer, per section	15
Confectioners' Stove, Atmospheric	50
Curling Iron Heater	1
Domestic Gas Iron (7 lb. or less)	2
Forbes Sterilizer	5
Gas Fan	2
Gas Stove Lighter—spark type	½
Gas Stove Lighter—flame type	3
Gem Burner—New Sale by Company	10
Gem Burner—Replacement or Reconnection by Company	2

Heating Stoves

	Sale
Fireplace or Wall Heaters	20
Gas Logs	7

Hot Water or Steam Gas Radiators

	Sale
Per section	4
Portable Heating Stoves and Radiators, selling for $3.25 or less, not including connection cost	4
Selling for more than $3.25, not including connection cost	7

Hot Plates

	Sale
1 burner	2
2 burner	3
3 burner	5
Incinerators	50
Laundry Stove, per burner	6
Percolator	5
Poultry Singer—domestic use	1
Commercial use—Refer to Hotel Division.	
Tailors' Gas Iron—in excess of 7 lb	6
Vincent Wall Burner	3
Waffle Stove	4

The following miscellaneous appliances are credited for each dollar of the selling price of the appliance in same manner as for illumination appliance:

Baffle Plate—Lawrence.
Cake Griddles and Cake Bakers.
High Closet—sold for existing installation.
High Shelf—sold for existing installation.
Hood—for wall or ceiling

Portable Oven.
Sad Iron Heater.
Toaster.
Waffle Iron
Warming Closet—sold for existing installation.

Reconnections

	Sale
Reconnections of all appliances not otherwise listed; for each dollar of the selling price	1
Connections, when not included in the selling price of the appliance, embracing pipe, tubing and cocks; for each dollar of the selling price	1

Water Heater—Non-Automatic

	Sale
Barbers' Boiler	20
Circulating—with flue and 50-foot spud	12
Without flue and with 35-foot spud	10
Combination Boiler and Water Heater—any size	18
Flue Connections—for any appliance to existing installation without flue for each dollar of the selling price	1

Changing Non-Automatic Combinations to Automatic Type

	Sale
No. 18 Electric Weld	8
No. 24 Electric Weld	18
No. 30 Electric Weld	18
No. 40 Electric Weld	28
No. 52 Electric Weld	38
No. 66 Electric Weld	48
No. 22 Lovekin	18
No. 28 Lovekin	28
No. 35 Lovekin	28
No. 55 Lovekin	48

Commissions on the above points are paid at the rate 12 cents per point if the appliance is sold by the salesman himself, or if sold at the office within two weeks of the turning in of a prospect card by the salesman. The salesman receives a credit of 2½ cents per point for all other appliances sold at the office to be installed in his district.

In contrast to the above, the following simple system is used by a Southern company:

Automatic Water Heater	50 points
Tank Water Heater	20 points
Large Cabinet Range	40 points
18-inch Cabinet Range	35 points
16-inch Cabinet Range	20 points
Double Oven Range	20 points
Meter Application	5 points
Room Heater	5 points
Piping and other appliances, for each $1 worth	1 point
Value per point	10 cents

Several similar schedules are in use, differing as to the appliances listed and the point value.

The following schedule is in use by an Illinois gas company, the money value of the sale being listed instead of a point value:

Cabinet Gas Ranges, $30.00 and over	$2.75
Cabinet Gas Ranges, under $30.00	2.50
Kitchen Heaters	1.50
Hot Plates	0.25
Laundry Stoves	0.50
Room Heaters	0.50
Tank Water Heaters	2.50
Automatic Water Heater—No. 2½	3.00
Automatic Water Heater—No. 3	3.50
Automatic Water Heater—No. 4	4.00
Automatic Water Heater—No. 6	4.50
Domestic Irons	0.50
Tailor Irons	1.00
Other appliances in stock	10 per cent

One company finds it advisable to raise the scale of points allowed for sales about 50 per cent during the months of November, December, January and February.

The following opinions regarding the point system have been expressed:

"We believe our system is the best system for paying gas company salesmen, because under its operation salesmen individually have more than doubled their business. It is fair both to the company and to the salesman. It puts the salesman's earning power up to him. It entails very little operating expense and the salesman is paid for the actual work done and not for what somebody thinks he can do."

"The point system we have been using for a number of years seemed to work very well, but recently we felt that there are some things about our system which should be changed. Just what these changes will be, we have not fully decided upon as yet, but there is a possibility that we will decide on some system such as allowing one point per dollar's worth of goods sold on some articles and two or three points per dollar's worth on others."

This brings out the advantage of a system which allows of paying a higher commission on some appliances than on others so as to push the sale of such appliances.

"I feel that a commission system, whether it is a bonus or a point system, is the only system which will give the best results to your company and to your salesmen."

"Salary and commission basis is used with high-class salesmen, and, of course, is the best working one, but when you have a gas company, large or small, and have to train your own men, we of the gas industry, I think, are fooling ourselves in the present way of paying our men, because when these men whom we have taught arrive at a certain stage, they invariably leave us for better paying jobs. This cannot be entirely overcome by any change in compensation.

"Some criticism has been passed on the straight salary basis, because it has been said that a man is liable to slow up in his efforts on this basis.

"I have found by experience that this basis of compensation just criticized has many times worked out most successfully, if the salesman is properly supervised, helped and encouraged.

"If we pay a man $100 a month straight salary and can tell him what we demand for that amount, and then make him hustle to get that amount, it always works successfully.

"Under the salary and commission basis, the man is supposed to be alive enough to get out and hustle so as to increase his revenue, and if he doesn't want to, this system does not pay him for doing nothing, and consequently we are liable to allow our commission-paid salesman to go along with less attention than the salaried man.

"I believe that a straight salary basis can be advised along the basis of $100 a month, and a certain amount

demanded for that salary. If the man at the end of the month has only given the amount that we would pay an $85 man, he automatically goes back to the $85 salary.

"If, on the other hand, he turns in results which put him in the $125 class, he automatically goes up to that salary.

"These changes in rating could be made every three months. That is, a man's average returns for three months would either put him in a better paying class or a smaller paying class.

"It seems to me that this would stimulate a man to work like the dickens to draw a higher salary for the next three months, and this stimulation would go on working *ad finem*.

"We believe the system we are following to be the best available, but not an ideal system. To obtain this ideal is particularly difficult; we do not at present see how it can be done. Among the disadvantages of the point system are the possibilities of the salesmen overselling their consumers, eager for commissions rather than for service, and their desire to be paid for everything that they do. Yet, at the same time, this system spurs the men on to greater efforts and to a great degree eliminates 'soldiering' on the job, and we therefore believe that its advantages more than offset its disadvantages."

General

The general subject of the compensation of salesmen is well covered in Lesson No. 14 of the N. C. G. A. Educational Course on Commercial Management. The various wage systems are described and compared, and their advantages and disadvantages are brought out.

The plan of compensation as used by one of our larger companies provides for a straight salary for men in such departments as the industrial, house heating and water heater divisions, and either commission or salary and commission in such departments as the arc lighting and domestic appliance sections. In this organization, the salesmen have the privilege of calling upon the specialists for assistance on any particular job, the commission men being paid for such prospects which terminate in sales.

This organization, of course, is too large for even the average company, but the general scheme may be approximated by paying straight salary to specialists in certain lines, these special men being in position to assist the general salesmen who are paid on some commission basis.

The majority of gas companies answering the questionaire sent them pay salaries twice a month and commissions shortly after the first of the month for amounts earned during the preceding month. Some few gas companies pay their men weekly and commissions every month, while a smaller percentage pay both salary and commission twice a month.

Generally speaking, credits are allowed only from completed work orders instead of from the salesman's report of orders taken. Thus, a man is paid only for what he earns and deductions for canceled or uncompleted orders are not necessary.

Opinions differ somewhat as to the amount of credit due a salesman for sales made in the office to customers in the salesman's territory. A small number of companies allow no credit whatever, while others allow full credit on sales directly traceable to the work of the salesman, usually through a prospect card filed in the office, with part credit for all other office sales. The most general practice seems to be to allow credit only when the salesman can show that he has approached the customer regarding the appliance in question within a definite time. In such cases he is paid an amount ranging from 20 per cent to 56 per cent full commission. Thus, while the salesman is urged to take the order himself, an undue amount of time is not consumed in trying to secure the order, and a better feeling between the customer and the salesman results.

The amount of territory assigned to one man differs largely with different companies, depending upon the nature of the territory and its gas and gas appliance saturation. The range is from 3,000 to 125,000 population, the average being about one salesman to every 20,350 inhabitants.

Comparisons

The following table was prepared to show how the four systems are divided among the companies of various sizes:

Meters in Use	Salary	Commission	Salary and Com.	Other Systems
0- 5,000.....	13	0	7	1
5,000-50,000.....	11	2	10	12
Over 50,000.....	3	3	3	6
Total.....	27	5	20	19
Subsidiary companies	5	3	5	12

It is easily seen that the salary system is more popular among the smaller companies. This may be partly due to lack of someone to evolve a more complicated method of compensation.

The straight commission system appears to be used mainly by the larger companies and those controlled by some larger syndicate.

The salary and commission scheme is more evenly divided than any of the others, being used by 33 per cent of the smaller, 29 per cent of the mediate and 20 per cent of the larger companies.

The more involved point systems are employed principally by the larger companies, there being but one company of less than 5,000 meters which uses it. Sixty-three per cent of the total number are companies which operate under the control of some larger organization.

It may be interesting to note a comparison of salaries earned under the four systems:

Salary, $91.06.

Commission, $126.37.

Salary and commission, $111.72.

Point and bonus and others, $103.88.

Figures showing the total business done by men compensated according to these plans would be interesting and valuable in making a comparison.

Undoubtedly, any commission system requires a greater amount of clerical work than does a straight salary basis. Also, the more complicated the system, the more care need be exercised and the more work is required in keeping its records. An average of one clerk to every four salesmen is not unusual. This objection has been met to some extent by requiring of the salesmen that they spend a few minutes of each day making out reports covering the greater part of the

necessary clerical work. This work can be done at a time which is least valuable for soliciting work. The additional clerical work then consists merely of checking against work orders and summarizing.

The advantages of the straight salary system are that it is the most simple method and requires the least amount of clerical work, and that it allows the manager, especially in smaller companies, to demand a part of the salesman's time for other duties, such as collecting and complaint work. The effect on the salesman, in that he is more careful and considerate of his customers because of the absence from his mind of the continual wage stimulation, is also an advantage.

The value of a pure commission scheme lies almost entirely in its impetus to the salesman. The salary earned is always in direct proportion to the sales made and the largest salary is earned by the man who brings in the greatest volume of sales. This plan allows the manager to determine beforehand just what the cost of selling any appliance will be.

The salary part of a salary and commission schedule should be sufficient to cover the bare living expenses of the salesman, with a commission which will provide the necessary impetus to make the plan a success. By paying such a guaranteed salary, a certain amount of general service work can de demanded. In addition, the man's mind will be left freer from worry because he is always sure of a large enough salary to meet ordinary living expenses.

The value of the various point systems lies in their flexibility in the hands of the sales manager. Commissions can be based upon increased gas consumption, or upon any conditions which would make the sale of any appliance more to the interest of the company than the sale of any other appliance. The effect, in a properly designed system, is to direct the attention of the salesman to such appliance as the gas company desires to sell rather than to leave it to the man to sell those for which he finds a greater demand.

Conclusion

The information set forth herein has been arranged with a view to showing what gas companies are doing regarding the compensation of salesmen, the details of the systems in use and the resultant remuneration under these systems.

The subject is a big one, and could be greatly amplified, showing the effect of different systems upon the sales results of the gas companies. The suggestion is made that future papers be prepared to show the relative advantages of various wage-paying systems as regards their effect upon the sale of gas and gas appliances.

The Greatest Good for the Greatest Number

The greatest good for the greatest number has long been held to be the highest aim of government and government action. There has never been a more perfect instrument of government for achieving this ideal than United States Liberty Bonds. By their very nature they give to every citizen of the United States a chance to serve his country by serving himself; and if one serves himself and by the same act promotes the welfare of all his fellow citizens, he certainly is serving the greatest good for the greatest number.

In buying a Liberty Bond one serves oneself first by discharging to that extent his paramount duty of patriotism in these days of his country's greatest war. He serves himself, also, in a direct, material sense by investing his money in an absolutely safe manner and at lucrative interest. Further, he serves himself by helping to win a war whose sole purpose is to make not only his own country, but his whole world, a safer, happier and saner place to live in, both for himself and for his posterity. Directly and indirectly that means, also, that he is conserving the value of his own property, for personal ownership of property would mean little in a world or a nation ridden either by domineering autocracy or destructive anarchy. Both of those conditions are inherent possibilities in German success. The imposition of German rule on free-spirited nations would both destroy individual freedom on the one hand and promote the anarchy of discontent and seditious revolt against oppression on the other. In a world in a state of unrest and uncertainty, property values would always be at low ebb. Even though the United States should retain its national entity and its sovereignty within its own borders, autocratic supremacy of Germany in Europe would inevitably impose on this country the necessity of becoming perpetually a militaristic nation in self defense, maintaining burdensome army and navy establishments that would have to be paid for out of the pockets of the people. In other words, the citizen is confronted with this alternative: Lend your money to your Government now to win the war, or else give it to your country later in the form of taxation to defend itself. In the first case your money will come back to you after having earned you more money; in the second case it never would earn you a cent and never would come back, for it would be dead loss, consumed by necessary militarism. This is the hour for the citizen to choose between these two alternatives, and Liberty Bonds are the instrument through which he can make his choice effective.

Having thus served himself by buying Liberty Bonds, the citizen by the same deed serves all his fellow citizens. He does so without additional cost or effort to himself, for in making the world safer, saner and happier to live in for himself and his sons, he also makes it a better place for everyone else. Each of the broader aspects of the great good of Liberty Bond investment that benefits the purchaser himself means an equal largeness of welfare for his fellow citizens. Therefore, the purchase of a Liberty Bond is an act of altruism that is perfect in its efficiency, for it requires no undue sacrifice on the part of the individual for the public good, but results in the maximum of public welfare.

Finally, in serving himself by buying a Liberty Bond the citizen serves his country, giving it the use of his money to fight the war, giving it his personal support and participation in its national solidarity of action and placing him unflinchingly in the ranks of patriotism, to stand four-square in the fight to uphold his country's glorious traditions of the past, to maintain its honor in the present and to make secure its safety in the future.

22,000,000 Cu. Ft. Gas Wells Completed in West Virginia

The United Fuel Gas Company, owned jointly by the Columbia Gas & Electric Company and the Ohio Fuel Supply Company, has completed a new gas well in the Spencer district of West Virginia, which is good for about 22,000,000 cu. ft. of gas daily.

With Rates Based on True Costs the Possibilities of the Gas Industry Would be Unlimited

E. G. Cowdery Expresses Doubts at Annual Convention of Illinois Gas Association if Many Men in Industry Know What True Cost Is—One-Day Convention the Most Successful Ever Held by Association—F. E. Luther the New President—Possibility that Illinois Companies Will Have to Confine Themselves to Illinois Coals—Utilizing Oil-Producing Shales

With an attendance of 250 and membership of 487, both the largest in its history, the Illinois Gas Association held its most successful annual meeting at Chicago, March 20.

F. E. Luther, assistant engineer of the Peoples Gas Light & Coke Company, was elected president, succeeding F. W. Bedard. The other officers elected follow: Vice-president, H. S. Whipple, manager Rockford Gas Light & Coke Company; secretary, H. H. Clark, re-elected; directors, two years, Carroll Miller, general manager Western United Gas & Electric Company, and A. D. Mackie, vice-president Springfield Gas & Electric Company; director, one year, J. G. Hart, general manager North Shore Gas. Affiliation representative American Gas Institute, F. W. Bedard, Illinois Traction System.

On recommendation of President Bedard, the association adopted a roll of honor for sixteen members in the national service, instructed the secretary to send suitable resolutions to men and families, remit dues of men in service and carry on correspondence with them. The president's recommendation for a standing committee on fuel supply was referred to the public relations committee.

Important discussions developed regarding the possibility of substituting Illinois coal entirely for Eastern coal for coking and regarding rates based on true costs.

Experiences were told by producers making coke from all kinds of mixtures of Eastern and Illinois coal, and one case was described of the production of marketable coke from Illinois coal, but the speaker admitted conditions are such now that any kind of coke can be marketed.

Experiments along this line are being conducted by the University of Illinois in conjunction with the association.

Belief was current at the convention that Illinois gas companies may soon be compelled to turn entirely to Illinois coal for coking, because of difficulty in getting Eastern coal.

The True Cost of Service

Discussing J. M. Spitzglass's paper on "Rates and Rate Making," President Cowdery, of the Peoples company of Chicago, said

"True charges for gas should be in proportion to cost of serving each consumer. On flat rates it is impossible to sell gas to the large industrial consumer. I don't believe very many men in the industry nor the various commissions have in mind what the true cost is.

"The commissions are waiting for gas companies to prove what are true costs. The commissions are not going to give the gas companies what is due them until shown what the true costs are. In our own case the cost of serving a customer is $1.25. That amount ought to be added to each bill. With rates based on true costs, the possibilities of the industry would be unlimited."

Seventeen new members were admitted at the convention and an equal number resigned. Five members died during the year.

E. G. Cowdery's report as chairman of the public relations committee stated that early in the year the necessity for increased rates became apparent. It was at first thought advisable to ask for a general increase, but investigation revealed that conditions among various companies differed so greatly it was decided to let each company handle its own case.

Fire Hazard Publicity

Following C. H. Kallstead's paper on "New Uses for Industrial Gas," several industrial gas customers of the Public Service Company of Northern Illinois told how they had been benefited by abandoning other fuel for gas. One said the insurance rate on his plant had been cut in half after the substitution of gas for fuel oil, and that the cost of gas was equal to a 5-cent fuel oil basis.

Discussing C. A. Luther's paper, "Do You Believe in Gas Lighting?" J. G. Learned, of the Public Service Company of Northern Illinois, said combination gas and electric companies had done much to discourage gas lighting, and gas men must get back into the fight before it is too late.

Mr. Learned said cooperation between gas and electric interests in industrial installations would be mutually beneficial. Referring to Mr. Luther's quotation of fire underwriters' figures showing fire damage

traced to electricity to be ten times as great as that traceable to gas, Mr. Learned said the gas and electrical interests should co-operate to prevent publication of such information.

Closing the discussion, Mr. Luther said the popularity of electricity, due principally to great advertising campaigns, point out that while electrical companies are spending millions to educate the public to electricity, the gas companies are not even educating their own employees to the advantages of gas.

At the night session W. G. Langtry, of the conservation committee of Fuel Administration, urged heavy storage of coal during summer to stabilize production, and urged precautions against spontaneous combustion.

F. W. De Wolf, of the State Bureau of Mines, described experiments in coking with mixtures of Illinois and Kentucky coals. He advocated the greater use of Illinois coal in coking as a patriotic and economic move.

Utilizing Oil Shales

Prof. S. U. Parr, of the University, revealed that there are oil-producing shales in Illinois, and that the university is investigationg. He said thus far shale had been found in the State which produced 5 cu. ft. of gas to the pound, 45 gal. of oil to the ton, and that enough carbon was left to make water gas of a cubic foot to the pound of shale. Another deposit of shale had been found in the center of the State which produced 18 gal. of oil to the ton.

Professor Parr said experiments in progress at the university for the last fifteen years indicate there is every reason to believe it is possible to coke Illinois coal, but the experiments had not reached the stage where he could announce how this can be done.

The association endorses the sixty-million-dollar good roads proposition which is to be voted on in Illinois, this money to come out of the automobile taxes, and authorized the president to appoint a committee in every city to boost enlistments in the gas and flame regiments.

Superior Meter Company Increases Capacity

The Superior Meter Company, Bush Terminal, Brooklyn, N. Y., has just completed a reorganization of the company, and increased the capital stock. They have also taken additional floor space in order to take care of their increasing business.

The officers of the company are: John H. Walsh, president; David Lambert, vice-president; John F. Smith, secretary, and James V. Walsh, treasurer.

Elected President of Illinois Gas Association

F. E. LUTHER

New President of Illinois Association Began Gas Work in the East

F. E. Luther, new president of the Illinois Gas Association, is one of the best known and best liked men in the gas engineering field in Illinois, a man of varied experience in the gas industry, a man efficiency in gas production is both a vocation and avocation.

As a boy Mr. Luther was educated in the public schools of Long Branch, N. J. From there he went to Lafayette College, Easton, Pa., and upon his graduation entered the gas industry, with which he has been connected ever since. One of his earliest connections was with the Long Branch Light Company. He also spent a few years putting up gas holders in the East.

In the early "nineties" he went West, and was given the post of assistant superintendent of the Cicero Gas Company, of Oak Park, Ill., a town adjoining Chicago. Later he left that company to become superintendent of production for the Ogden Gas Company, of Chicago. When the Ogden company was consolidated with the Peoples Gas Light & Coke Company, Mr. Luther continued in charge of the Odgen plant until it was shut down in 1909. He was given charge of the Twenty-second Street plant of the Peoples company. Then he was for four years assistant superintendent of the street department of the company. During the last three or four years he has been assistant engineer of the company.

Mr. Luther has written numerous technical papers on gas production, and is credited with a number of improvements all toward greater efficiency.

He has been chairman of various committees of the Illinois Gas Association, and steps into the presidency from the vice-president's chair. He is a brother to Charles A. Luther, head of the lighting division of the Peoples Gas Light & Coke Company.

Increase in Rates Granted at Three California Cities

The State railroad commission has issued an order authorizing the Northern California Power Company, Consolidated, to make a new schedule of rates for artificial gas, served to consumers in Redding, Red Bluff and Willows, in Shasta, Tehama and Glenn Counties, respectively, of $1 for the first 500 cu. ft. or less of gas consumed a month, $1.70 a thousand for the next 4,500 cu. ft., $1.45 a thousand cubic feet for the next 10,000, and a rate of $1.20 a thousand for all over 15,000 cu. ft. of gas consumed in a month.

The company applied to the railroad commission for a higher rate, saying that it was not earning a fair return on its investment, and the commission so found. The present rates are:

For the first 5,000 cu. ft. of gas consumed a month, $1.50 a thousand cubic feet; for the next 10,000 cu. ft., $1.25 a thousand cubic feet; for all over 15,000 cu. ft., $1 a thousand cubic feet, and a minimum charge of $1 a meter a month.

Malden and Melrose Companies to Issue Short Term Notes

The Malden Electric Company and the Malden & Melrose Gas Light Company announce that they are to issue notes for short-term loans for six years to take up floating indebtedness. The notes are to sell for 96½ and bear interest at 6 per cent. Under ordinary conditions the company would have taken up the indebtedness by a stock issue.

Pittsburgh Company Notifies Industrial Plants that Gas Will be Curtailed

Notices have been sent out by the Equitable Gas Company, Pittsburgh, Pa., that it has been found necessary to curtail, and eventually cease furnishing in large quantities, gas for industrial purposes. On April 1 the company will withdraw its general industrial rates, but will continue to furnish gas under certain term contracts until such contracts terminate.

This step is considered necessary to take care of 140,000 domestic consumers. Officials say that notwithstanding an extensive drilling program to be carried out, it will require all the surplus gas available during the coming year to supply the requirements of industrial consumers having term contracts.

Dallas Company's Expenses Exceed Its Income

The expenditures of the Dallas Gas Company for the year ended Dec. 31 last were largely in excess of its gross income, according to the annual report. The statement shows a gross income of $294,011.74, of which $285,858.89 was derived from the sale of gas. The total expenditures for the year were $320,359.04.

Under the head of expenses the following items appear: Salaries, $57,745.40; labor, $52,757.86; taxes, $30,000; extensions, $57,709.60; repairs, $24,721.83; claims for damages, $2,400.

The company gives its capital stock as $850,000, of which $500,000 is preferred.

The total value of property owned by the company is $1,021,494.

In the city are 254,619 miles of gas mains, 21,391 services from the mains, 24,629 meters and 44 regulating stations.

The total liabilities of the company are placed at $1,612,152.43.

Cincinnati Gas Company Sells Notes

The Equitable Trust Company, of New York, and Weil, Roth & Company have purchased $2,225,000 Cincinnati Gas & Electric Company two-year 6 per cent secured notes, dated March 15, 1918, and due March 15, 1920. The notes are secured by first and refunding first mortgage, forty-year 5 per cent bonds, due April 1, 1956. A syndicate will be formed shortly to offer the notes.

Franchise Granted for Ruston, La.

Louis Lock, of Monroe, La., has been given a gas franchise by the board of aldermen of Ruston, La. J. H. Trousdale and associates of Monroe also were applicants for the franchise. If gas is not found in sufficient quantities near Ruston after two wells are drilled, Mr. Lock and associates probably will pipe gas from the Monroe field.

Merger of Ohio Companies Is Completed

With the approval of the State public utilities commission, which was announced recently, the merger of the various utilities of Mansfield, Ohio, became operative, and the Richland Public Service Company takes over the properties of the Railway, Light & Power Company, operating the Shelby interurban line, the Mansfield Electric Light & Power Company, and the Mansfield Gas Light Company, with all their appurtenances. Included in this merger is the plant at Melco, transmission lines from Melco to Mansfield, and from Melco to Ashland, substations in Mansfield and at Ashland, and at the steel plant.

The commission granted the company power to issue bonds for $3,200,000 and stocks amounting to $2,292,000. It was stated that for the present no effort would be made to place the stocks and bonds on the market in Ohio, but they would be handled by the New York office of the Doherty company. Because of the present financial conditions and the low prices of stocks at this time, it was considered advisable not to sell the bonds at present.

The office of the light company will be combined with the gas company in a few months, and in the line of economy the meter readers of the gas company will perform the work of the meter readers of the light company. R. E. Burger, who has been general manager of the Mansfield Electric Light & Power Company since its inception, will continue in the same capacity with the new company.

Milwaukee Company to Issue Bonds

A trust mortgage for $5,000,000 was filed recently with the register of deeds of Milwaukee County by the First Trust & Savings Company, of Cleveland, Ohio.

The mortgage was given to the trust company by the Milwaukee (Wis.) Coke & Gas Company to secure a bond issue to be made through the trust company by the gas company.

Bonds in the denomination of $1,000, $500 and $100 will be issued. Fifteen hundred bonds of the denomination of $1,000 will be issued immediately and the remainder of the issue in the amount of $1,000,000 annually between the present time and the year 1933.

Chicago Commission Hears Four Cases on Suspension of Main Extensions

Four hearings on the petitions of as many gas companies for suspension during the period of the war of Rules 19 and 31 of General Order 20 of the Illinois Public Utilities Commission regarding the extension of mains were held by the commission during the last week. The hearings were on the applications of the Central Illinois Light Company, the Springfield Gas & Electric Company, the Quincy Gas, Electric & Heating Company and the Public Service Company of Northern Illinois.

The temporary abrogation of this provision is asked because of the

steadily rising cost of materials, labor and all phases of construction work in the face of a fixed schedule of rates for service. The provision which these four companies and a number of others have petitioned the commission to suspend for the present follows:

RULE 19, EXTENSION OF MAINS

(a) *Definitions.*—For the purpose of this rule, a high pressure system shall be taken to mean one in which the gas is carried at a pressure of 2 lb. or over per square inch to the consumer's premises where a service governor is installed to obtain a reduced pressure on such premises. A low-pressure system shall mean a system in which the consumer's service is connected directly to a main carrying less than 2 lb. per square inch water pressure.

(b) *Free Extensions.*—Each utility shall upon written request for service by a prospective consumer, or a group of prospective consumers located in the same neighborhood, make free of charge a street main extension necessary to give service, provided that the length of the entire extension is not greater than that obtained by allowing 100 ft. per consumer for a low-pressure system and 200 ft. per consumer for a high pressure system.

(c) *Extensions Above Free Limit.*—If the main extension required in order to furnish service at any point within the corporate limits of any city or village, or for any adjacent suburb of a city or village, is greater than the free extension specified above, such an extension shall be made under the following conditions: The utility may require a deposit of the cost of the extension above the free limit and shall, in such a case, refund an amount equal to the cost of the free main extension for each additional consumer whose service shall be taken off of the entire extension within a period of ten years from the making of such an extension, but at no time shall the rebate made exceed the original deposit. If the extension is of such length and the prospective business which may be developed by it is so meager as to make it doubtful whether the business from the extension would ever pay a fair return on the investment, the facts shall be reported to the commission for investigation and determination as to the reasonableness of such extension.

This rule shall not be construed as prohibiting any utility from making free extensions of lengths greater than above specified, or from providing a method of return of deposits for extensions more favorable to consumers, so long as no discrimination is practiced between consumers whose service requirements are similar.

(d) *Contract for Service.*—Utilities will not be required to make street main extensions as described in this rule unless those served by such extensions shall contract to use the service for at least one year.

St. Vincent's Hospital Installation Makes Portland, Ore., a Town of All Gas Kitchens, with One Exception, So Far As Hotels, Hospitals and Restaurants are Concerned

(*Continued from page* 275)

There are numerous small gas ranges located in the various diet kitchens on different floors, also gas-fired sterilizing tanks. There is also a No. 217 Blodgett bake oven in a room used as a bakery, and several hot plates which are used to make fillers and mixtures.

INCREASE IN GAS CONSUMPTION

Their average gas bill prior to changing the main kitchen over to gas was between 75,000 and 80,000 cu. ft. per month.

In the sanitarium, which is located in a separate building, they were using a small standard gas range in the diet kitchen and two sections of wood range in the large kitchen, which used about 2 cords of wood at $6.50 per cord.

The gas bill for the sanitarium formerly averaged between 8,000 cu. ft. and 9,000 cu. ft. per month.

The cooking done in this building is not quite as heavy as in the main kitchen, and not as many people to feed.

We succeeded in getting out this wood range and installing a two-section No. 25 Eclipse hotel range, which was installed by their own mechanic. The total consumption on both meters averaged between 85,000 and 95,000 cu. ft. per month.

With a complete gas kitchen in the two buildings the total consumption was 166,700 cu. ft. from May 25 to June 29, 1917.

The main kitchen consumed 144,600 cu. ft. and the sanitarium consumed 22,100 cu. ft.

Compared with the gas bills for the same period of 1916 when the two buildings consumed a total of 84,000 cu. ft., there is a difference of 82,000 cu. ft. gas consumption over the same period of the year before.

But, after you take into consideration the $59 that coal and wood was costing in the main kitchen and the sanitarium, and the discount that is given on quantity consumed, it would total a net saving of gas over hard fuel of $21.60 per month, not to speak of the time, dirt, ashes and other labors that are involved where hard fuel is used.

This equipment has given entire satisfaction since the date of installation, and presents one of the cleanest kitchens in the city of Portland, and one of which the institution and the gas company are very proud. It only goes to show that when the proper units are installed gas is hard to beat as a fuel.

Bills to Prevent Price Increases in Massachusetts

The Massachusetts House of Representatives have substituted for the adverse report of the committee on public lighting a bill which aims to prevent increases in the price of gas and electricity except after approval by the State gas and electric light commission.

The bill originated with a Worcester member of the Legislature, who objected to the Worcester Gas Light Company's increase from 75 cents to $1.15 per thousand feet, effective recently. He claimed the calorific standard lately set up reduced the quality of the gas one-sixth.

Opponents of the measure pointed out that the gas commissions have all necessary power in the premises and that the bill is needless. One member asserted that the measure was a purely political move. The chairman of the public lighting committee said that the proposal interfered with the settled policy of the State, which is that increases in prices shall be subject to review by the gas commission on complaint. He believed public service corporations should be spared meddling with, especially at the present time of extraordinary conditions.

Increase Asked for Adrian, Mich.

The Lenawee Gas & Electric Company has petitioned the city of Adrian, Mich., for 10 cents raise in gas rates.

Brockport, N. Y., Consumers to Pay More for Gas

The Brockport Gas Light Company has given notice to its consumers that a new tariff will be put into effect in April, increasing the price of gas. The notice has been sent to the public service commission.

The light company officials state their willingness to send a regular report to the village board, showing the receipts and expenses of the company. They claim that in spite of the service charge imposed since last May, the company had to stand a considerable loss during the year.

Increase Granted at Blair, Neb.

At a city council meeting recently an ordinance was passed permitting the Blair (Neb.) Gas Company to make a slight increase in its charges per 1,000 cu. ft., from $1.50 to $1.75, on account of the heavy increase in the cost of crude oil and coal. The minimum charge will be $1, whereas there was no minimum charge before, the customers paying only for the amount of gas consumed.

Rate Increase for Hastings, Mich.

The city council has granted the Thornapple Gas & Electric Company, Hastings, Mich., a special franchise boosting the price of gas from $1.35 to $1.50 per 1,000 ft. for a period lasting until six months after the war ends.

Labor Problems to be Discussed at National Conference of the Society of Industrial Engineers

"Labor Problems Under War Conditions" will be the principal subject of the national conference of the Society of Industrial Engineers, which is to be held at the Hotel La Salle in Chicago on March 27-29, inclusive.

The discussion on this topic will be divided under the following classification:

(a) Women in industry—replacing men.

(b) Men remaining — securing their maximum production.

(c) Mechanical equipment — its functions in replacing men.

(d) After the war—readjustments to care for those returning, including disabled.

Executives of commercial and industrial concerns, Government officials and members of commercial and engineering societies are among the speakers scheduled for the conference.

Society of Gas Lighting Honors Deceased Member

The undersigned committee having been appointed to present a memorial on the death of our member, Dr. Arthur H. Elliott, on Feb. 28, 1918, beg leave to submit the following:

Dr. Elliott had been for upward of thirty-eight years connected with the gas industry, and was a chemist to whom the industry is deeply indebted for the application of the science of chemistry to its problems and processes. He was born in London, England, in 1851, and was the son of a physician. While a child he was taken to France, where he received his early education, learning to speak the French language before his native English. His father having destined him for the medical profession, he commenced his studies on his return to England. His attention being attracted to chemistry, he gave up the study of medicine to pursue that of chemistry. While still a student he obtained a reputation as an iron and steel analyst, publishing two methods of analysis, one for the determination of sulphur and the other for the determination of carbon in cast iron.

On his graduation from the School of Mines at South Kensington, he left England, intending to go to Australia, where an uncle resided, having in mind also the possibility of a trip to China. On his arrival in New York he met Prof. Charles F. Chandler, to whom he had a letter of introduction, and who induced young Elliott to remain. He graduated from Columbia College with the degree of Doctor of Philosophy in 1883. He became demonstrator in chemistry at the College of Pharmacy, and afterwards professor of chemistry and physics at the same college.

He became connected with the Municipal Gas Lighting Company in May, 1880. In November, 1884, when consolidation took place, he became engineer-chemist of the Consolidated Gas Company, which position he held until May, 1910, when he resigned, but was retained as consulting chemist until his death. Recently the University of Columbia College conferred on him the honorary degree of Master of Science.

He was a member of the Society of Gas Lighting, American Gas Institute, Illuminating Engineering Society, Society of Chemical Industry, American Chemical Society, and other societies and institutions. He was esteemed by all who had the privilege of his friendship; in fact, to know him was to love him. He left the impress of his personality on the societies to which he belonged and on all who came in contact with him. He always was ready to lend a helping hand, and many young members of the chemical and engineering professions are deeply in his debt for assistance which he gave them in their careers.

He was married in 1887 to Miss Kate P. Uglow, and is survived by his wife, three daughters and one granddaughter.

WHEREAS, In the death of Dr. Elliott the Society of Gas Lighting has lost a member of great talent and ability, and his fellow members a friend whose lovable personality endeared him to all; therefore, be it

Resolved, That the members of this society unite in expressing their sincere regret at the death of Dr. Arthur H. Elliott, and their heartfelt sympathy to Mrs. Arthur H. Elliott and her family in their great affliction; and be it further

Resolved, That a copy of this resolution be spread in full upon the minutes of this society and a copy thereof be sent to Mrs. Elliott, and a copy printed in the AMERICAN GAS ENGINEERING JOURNAL.

E. G. LOVE,
M. H. SPEAR,
E. C. UHLIG, Chairman.

March 14, 1918.

New Gas Record for New York City for February

The use of gas in New York City in February broke all records for that month, though the figures for the short month fell behind those

of January, which established a new high record. The output of the seven systems which supply the city with gas was 5,306,016,000 cu. ft. in February, an increase of 17.55 per cent over February of 1917. The output in January last was 6,122,828,500 cu. ft.

Women Collectors for Flushing District

Women collectors have been put to work by the New York & Queens Gas Company in Flushing, N. Y., and the company is considering employing women as meter readers.

Shenandoah Company to Raise Price of Gas on April 1

The Shenandoah Light, Heat & Power Company, operating in Shenandoah, Schuylkill County, Pennsylvania, has filed with the public service commission a new tariff of gas rates, effective April 1, 1918, providing for an increase in the minimum charge from 50 cents to $1 per month, and in addition the unit rates for gas for light and domestic fuel are increased from $1.18¾ and $1.23½ net per 1,000 cu. ft. to $1.50 per 1,000 cu. ft., and gas for fuel and light in hotels and restaurants is increased from $1.04½ net to $1.30 net per 1,000 cu. ft.

This is an increase of about 25 per cent.

Williamstown Company Files Notice of Increase

Notice of an increase in rates in the monthly minimum charges, effective on April 1, was recently filed with the public service commission by the Williamstown Gas Company, operating in Williamstown and Lykens, Pa.

The increase in tariff is from 30 to 50 cents, with advances of from 15 to 35 cents per 1,000 cu. ft. in the units charged for gas consumed.

Increased Rate Asked for Lawrence, Mass.

The State board of gas and electric light commissioners held a hearing in the council chamber recently on the petition of the Lawrence (Mass.) Gas Company for an increase in the present rate of 85 cents per 1,000 cu. ft. High cost of material entering into the manufacture of gas was given as the reason for the increase.

The attorney for the gas company informed the commission that the increased cost per each 1,000 ft. of gas was 9 17/100 cents. He said that coal difficulties have arisen which make the situation different and that the increased cost per 1,000 ft. will be 23½ cents.

At the close of the hearing the petition was taken under consideration by the commission. The members of the commission gave the impression that they would favor an increase, the amount of increase being the question. The gas company did not ask for any specified amount of increase, leaving it to the discretion of the board.

Proposed Sliding Scale for Knoxville, Tenn.

A sliding scale for reduction of gas rates from the coveted price of $1.20 per 1,000 cu. ft., automatically adjusted as the cost of coal declines, has been proposed by the Knoxville Gas Company.

It is understood that the city commission has been advised that if the increase of 20 per cent be permitted at this time, on account of the high cost of coal and other materials, the company would agree to a gas price reduction of 5 cents per 1,000 cu. ft. to each decline of 50 cents per ton in the cost of coal.

The company claims it is now paying $4.25 to $4.28 per ton for gas coal, whereas, before the abnormal advance in the coal market it purchased its gas-producing fuel at $1.70 per ton.

Its tentative suggestion to the city commission, it is understood, is for the commission to grant it permission to raise its rate to $1.20 as long as coal costs the company $4.25 per ton. When coal slumps to $3.75, the price of gas automatically will come down to $1.15. When coal drops to $3.25, gas will cost the consumer $1.10. Another decline of 5 cents, or to $1.05, will appear on the gas bill when coal sells at $2.75. The original price of $1 per 1,000 cu. ft. of gas will apply when coal is $2.25 per ton or 55 cents more than the company was paying for coal when its fuel contract expired last August.

The gas company takes the position that this adjustment of the matter would still leave it carrying a burden of the difference between coal at $1.70 per ton and $2.25 per ton, but its officials are understood to have expressed a willingness to do this.

Contra Costa Company Granted Rate Increase

An increase of 33 1/3 per cent was allowed the Contra Costa Gas Company over the old rates of $1.50 for the first 1,000 cu. ft., with a decrease in the rate to the larger consumers. The rate is now $1 for the first 500 cu. ft. The company serves the towns of Martinez, Pittsburg, Antioch, Pacheco, Port Costa, Crockett, Valona, and Concord, Cal.

To encourage the payment of bills promptly a 10 per cent discount will be allowed by the company in future only within three days after the reading of the meter instead of fifteen days as formerly.

Old Colony Company Announces 20 Cent Increase

The Old Colony Gas Company has announced an increase in the price of gas of 20 cents per 1,000 cu. ft., making the net price $1.60 per 1,000 cu. ft. This is the second raise in a few months.

The company gives these reasons: While the gross earnings have been showing a marked increase, the operating expenses have increased at a much faster rate, so that the net earnings show a sharp decrease. This is due to the increased cost of material and labor. The gas company advises that they have stopped paying dividends, so that the stockholders are sharing with the consumers the result of these hard times.

Slatington Pa. Gas Plant to be Sold

In pursuance of a decree of foreclosure entered by the Court of Common pleas of Lehigh County in equity, the Lehigh Valley Trust Company will sell at public sale the plant of the Slatington Gas Company. The plant's appliances include 4 miles of gas mains, meters and service connections for 500 consumers; a baby low water gas set, a gas holder of about 25,000 cu. ft. capacity and oil tanks of about 15,000 gal. capacity.

Personal Notes

W. L. Brown, C. T. Boynton and Clayton Mark, all of Chicago, were elected members of the board of directors of the By-Products Coke Corporation at the last annual meeting of stockholders.

Henry I. Lea, a public utility expert of Chicago, who had charge of the compilation of data for the Spokane (Wash.) Gas Company in the hearing before the public service commission in 1913, is working on the books of the company in conjunction with Manager Harry Warner in their efforts to secure increased rates. Engineer Lea is assisted by A. W. Childs, of Chicago, one of his office staff.

Marshall Dodge was elected a director on the board of the United Gas & Electric Corporation, filling the vacancy caused by the death of S. J. Dill, at a recent meeting of the stockholders. The retiring directors were re-elected. The directors will organize for the election of officers on March 28.

The Indiana Coke & Gas Company, Terre Haute, Ind., held the stockholders' meeting March 11, at which the following directors were elected: A. M. Ogle, James S. Royse, M. E. Bradley, Leon Stern and Paul N. Bogart, of Terre Haute, and John J. Appel and T. D. Sheerin, of Indianapolis. The directors met later and re-elected the following officers: Paul N. Bogart, president; T. D. Sheerin, vice-president; M. E. Bradley, secretary; Leon Stern, treasurer.

Charles H. Williams, who was known to the majority of the Doherty public utility operators, died in Denver on March 10 of pneumonia. He was forty-four years of age. Mr. Williams was a graduate of the University of Wisconsin, class of 1896, and was one of the first college engineers to work for Henry L. Doherty. This was at the Madison (Wis.) Gas & Electric Company in 1897. Subsequently he became general superintendent of that company, and in 1905 was made manager of the Wisconsin Light & Power Company at La Crosse, Wis. Then he went west with the Northern Colorado Power Company. For the last half dozen years Mr. Williams has been engaged in building and operating gas and electric plants in many of the smaller cities of the West.

J. B. Anderson, assistant manager of the Brockton (Mass.) Gas Light Company, was chosen president of the New England Association of Commercial Gas Managers at a recent meeting held in Boston.

Henry W. Peck, vice-president and general manager of the Schenectady Illuminating and Mohawk Gas companies, both of Schenectady, N. Y., and former president of the Board of Trade, was unanimously elected president of the Board of Education at a recent special meeting of the board. The main business of the meeting was to discuss plans for a new school building to be constructed at an estimated cost of $85,000.

Henry W. May, for the past seven months employed in the office of the Monadnock Mills, has been appointed assistant superintendent of the Claremont (N. H.) Gas Light Company, assuming his new duties this month. While nominally assistant superintendent, Mr. May will in reality be the acting manager of the office, as F. R. Thomas, who is continued as superintendent, has been able to devote practically no time to his duties since his appointment as superintendent of the Monadnock Mills several months ago.

Dr. John Franklin Southmayd, forty-nine years old, for the last four years chief surgeon for the Brooklyn Union Gas Company, recently died of a complication of diseases in his home, 80 Union Street, Brooklyn, N. Y. He was born in Middletown, Conn., and was a graduate of the College of Physicians and Surgeons. He was also examining physician of the Modern Woodmen and of the Junior Order of United American Mechanics. He was a member of the Long Island Medical Association and the Kings County Medical Association.

The Huntington (W. Va.) Development & Gas Company reports for the twelve months to Dec. 31 gross $644,289; net after taxes, rentals, etc., $365,038; surplus after charges, $174,222.

Societies and Associations

The Illuminating Engineering Society, New York Section, held its monthly meeting in the Engineering Building, 29 West Thirty-ninth Street, New York City, Thursday, March 14, at 8.15 p. m. A paper on "An Aspect of Light, Shade and Color in Modern Warfare," by M. Luckiesh, was read. The practical application of these principles was discussed by persons who are at present actively engaged in experimentation looking toward the solution of some of these problems. An a-la-carte dinner was served at Healy's Restaurant, Forty-second Street and Madison Avenue.

The Guild of Gas Managers held its annual dinner March 9 in Young's Hotel, Boston, Mass. Ex-Senator Robert Washburn, of Worcester, was the guest. The ceremonies began and ended with the singing of "The Star-Spangled Banner." Dana D. Barnum presided, and there were seventy-five present.

The Old Colony Gas Company, East Braintree, Mass., held its second annual convention in the conference room of the office building. The following program was carried out to the entire satisfaction and enjoyment of all present: Opening of convention, George P. Smith, Jr.; "Men Who Made Good," C. D. Bond; "Teaching the Public in the Use of Gas," Miss Marion Low; "The Other Fellow," Thomas McCarthy; "Salesmanship to Consumer," James W. Shortall; "The Call to Duty," Miss Mildred Kalns; A Word from Our Vice-President, E. M. Farnsworth, Jr.; "Character in Business," William Gould, of the Gas & Electric Improvement Company, Boston; "Manufacturing Water Gas," Ralph Gardner; "Our Patriotic Duty at Home," Lieut. F. G. Wright, of U. S. Naval Training Station, Hingham; "Welding and Repairing Mains," William Sullivan; "Water Heaters," C. Edwin Bartlett, of the Ruud Manufacturing Company, Philadelphia. The play given in the evening in Lincoln Hall by the Old Colony Stock Company was in every way a success.

THE PENNSYLVANIA GAS ASSOCIATION will hold the annual meeting of the association at the Hotel Adelphia, Thirteenth and Chestnut Streets, Philadelphia, Pa., April 10. There will be an executive session in the morning for the election of officers and reports. Two papers are being prepared for the afternoon meeting, one on manufacturing and distribution troubles the past winter, and the other on a commercial topic. Dinner in the evening, although under the regulation of the Food Administration, it is hoped will be an enjoyable affair. Prominent speakers will be in attendance on this occasion. It is hoped that this meeting will develop into a joint session of the New Jersey State Gas Association and the Pennsylvania association.

THE WISCONSIN GAS ASSOCIATION has set March 26 and 27 as the days for its annual convention, which is to be held at the Hotel Pfister, Milwaukee, Wis. Owing to the illness of the president of the organization, program details have not yet been arranged. A discussion of mutual interest to both gas and electric men will take place March 27. The customary banquet will be held the night of March 27.

THE GAS COMPANY EMPLOYEES' ASSOCIATION of the Pittsfield (Mass.) Coal Gas Company held the monthly meeting of the association in the gas office building on South Street Thursday evening March 7. The meeting was presided over by the newly elected president, Berkeley Teeple. Following the disposal of several important business matters, the secretary of the organization, John J. Quinn, read a paper on "The Electric Cooking Proposition." The paper gave a thorough presentation of the subject, showing the numerous points for and against the electric range in comparison with the gas-burning range of to-day. The matters of first cost, operating expense and general utility were presented. The paper was supplemented by an interesting collection of data pertaining to the subject. An animated discussion followed the reading. While the meeting was to be a Hooverized one, the committee sprung a pleasant surprise by serving ice cream and cakes in addition to the ever-present cigars. A musical program was carried out by William Welch, violinist; Charles Crockford, piano, and Henry Gekler, mandolin.

Construction Notes

Spring Valley Company to Resume Service

The Spring Valley Gas Company was ordered to proceed without delay to operate its gas plant and continue service to consumers. The order was issued by the Illinois State Public Utilities Commission reaffirming an order of Jan. 15.

The Spring Valley gas situation has been before the State commission since early last fall, when a petition was presented for leave to suspend operations on account of a shortage in fuel oil. A ruling was made on Jan. 15 denying the petition, but meanwhile the plant was shut down and the mains and machinery were permitted to freeze.

Officials of the company announced recently that they expected to have the gas plant in shape to resume service very shortly.

Detroit Company to Make Big Extensions

An offering of $2,500,000 of Detroit City Gas Company general mortgage 5 per cent gold bonds is being made by Halsey, Stuart & Company, Chicago investment bankers.

The bonds are part of an issue to be used to finance additional plant extensions made necessary by the increased demand for gas among war munitions plants.

Indicating the necessity for plant extension, Emerson McMillin, president of the Detroit City Gas Company, and chairman of the board of directors of the American Light & Traction Company, which controls the plant, states that Detroit now is the fourth city in the United States in the consumption of gas.

Sales of gas to a population of 1,000,000 in Detroit and adjacent territory during the last three years has been 6,492,922,900 cu. ft. in 1915, 7,991,707,600 in 1916 and 9,443,407,800 cu. ft. in 1917. This consumption passes through 194,263 meters and 965 miles of mains.

The company's common stock of $9,500,000 is all owned by the American Light & Traction Company. In addition there is $10,930,000 of bonds and mortgages for a total capitalization of $20,430,000. The plant investment is $21,000,000.

Additional Unit for Carbon Black Plant at Baker, Mont.

The first shipment of steel for the additional units of the Carbon Black plant of the Montana Petroleum Company arrived in Baker, Mont., recently, and is the first car of twenty-five that will be shipped this spring.

The first unit started last fall is practically complete, and operation will be commenced about April 15. Two more units will be constructed this summer, and it is expected that they will be ready to operate about Sept. 1.

Terre Haute Company to Extend Its Operations

Discussion of plans for enlarging the plant of the Indiana Coke & Gas Company, Terre Haute, Ind., was the only matter outside of routine taken up at the annual meeting of stockholders held March 11 in the Rose Dispensary Building. Contracts now in course of preparation call for installing another battery of ovens and the regulation apparatus for handling by-products. The enlargement planned will handle a 60 per cent increase in production.

Findlay, Ohio, to Have More Gas Wells

The city council of Findlay, Ohio, is passing the necessary legislation for the drilling of several more gas wells near the water works station in order to conserve on coal. The first well drilled some months since has paid for itself, and it is believed there is more gas to be found in that vicinity.